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American Society of Hospital Pharmacists

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MEMBERSHIP in the American Society of Hospital Pharmacists and the American Pharmaceutical Association is open to all practicing Hospital Pharmacists. With membership is included subscriptions to THE BULLETIN of the American Society of Hospital Pharmacists and to the two *Journals* of the American Pharmaceutical Association, as well as the several services of both organizations.

ADVERTISING will be accepted, subject to editorial approval, for prescription products as well as for other items used extensively in hospitals. Inquiries should be sent to the Associate Editor of THE BULLETIN, American Pharmaceutical Association, 2215 Constitution Ave., N.W., Washington 7, D. C.

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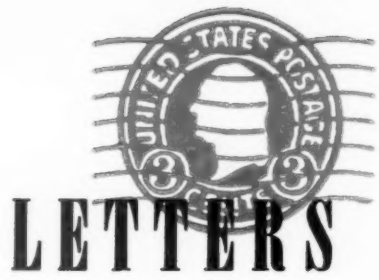

LETTERS

Gift Membership

DEAR SIRS: Thank you for your letter of October 22 and please find enclosed check for five dollars for membership in the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS for my son. He is a pharmacist and is now in the army assigned to the pharmacy at the William Beaumont Army Hospital in El Paso, Texas. Please send THE BULLETIN to him . . . I am sure he will be justly proud to be a member of this fine organization.

My son is a member of the American Pharmaceutical Association . . . In fact, while attending the College of Pharmacy at the University of Michigan in Ann Arbor, he served as secretary of the A.Ph.A. Student Branch.

An application is enclosed . . . Thanking you very much.

MRS. FRANZ GEISZ, SR.
17357 *Birwood Avenue*
Detroit 21, *Mich.*

Request for Information

DEAR SIRS: A physician has requested information on a product called "Gilfaril" to be used instead of salicylate, and another drug, "R-48" used in Hodgkin's Disease.

WILLIAM F. GRADY, *Pharmacist*
Worcester City Hospital
Worcester 3, *Mass.*

EDITOR'S NOTE: "R-48" is a nitrogen mustard compound which has been used experimentally in the treatment of leukemia. A report on its use in Great Britain is included in the publication *Lancet* (London) for May 13, 1950, page 258.

We have not been able to locate information on Gilfaril.

Reprints Requested

DEAR SIRS: Will you please send me several copies of the *Minimum Standard for Pharmacy Internships in Hospitals.*
Thank you kindly.

VIRGINIA CAUDLE, *Chief Pharmacist*
City Memorial Hospital
Winston-Salem, N. C.

DEAR SIRS: Please send me two reprints of the series of articles on pesticides which appeared in THE BULLETIN (May-June) 1952.

EDWARD F. CROUMEY, *Chief Pharmacist*
The Mary Fletcher Hospital
Burlington, Vermont

EDITOR'S NOTE: Reprints requested in the letters above are available without charge from the Division of Hospital Pharmacy, American Pharmaceutical Association, 2215 Constitution Ave., N. W., Washington, D. C.

Fixtures for Pharmacy Departments

DEAR SIRS: Within the next few months we expect to utilize our recently expanded facilities and are anxious to select the proper type of cases and cabinets for the new Pharmacy . . . Any comments, suggestions or recommendations which you can make as to reliable sources for this type of equipment will be greatly appreciated.

L. T. ZISKA, *Asst. to Administrator*
MacNeal Memorial Hospital
Berwyn, Ill.

EDITOR'S NOTE: Among the companies which supply fixtures for pharmacy departments are the following: A. S. Aloe, 1831 Olive Street, St. Louis 3, Mo.; Grand Rapids Store Equipment Company, Grand Rapids 2, Mich.; Hamilton Manufacturing Company, Two Rivers, Wis.; and Kewaunee Manfacturing Company, 5019 South Center Street, Adrian, Mich.

Formularies on Loan

DEAR SIRS: I am returning to you the formularies which you so kindly loaned to me. I am sorry that I could not return them before but the committee did not get together in time to study them until last week. We found a great many ideas in the sample copies you sent and we certainly appreciate your having made them available.

W. H. CORD, *Pharmacist*
Memorial Hospital of Floyd County
1850 State Street
New Albany, Ind.

when resistance to other antibiotics develops...

Chloromycetin®

Current reports[1,2] describe the increasing incidence of resistance among many pathogenic strains of microorganisms to some of the antibiotics commonly in use. Because this phenomenon is often less marked following administration of CHLOROMYCETIN (chloramphenicol, Parke-Davis), this notably effective, broad spectrum antibiotic is frequently effective where other antibiotics fail.

Coliform bacilli—100 strains

up to 43% resistant to other antibiotics;
2% resistant to CHLOROMYCETIN.[1]

Staphylococcus aureus—500 strains

up to 73% resistant to other antibiotics;
2.4% resistant to CHLOROMYCETIN.[2]

CHLOROMYCETIN is a potent therapeutic agent and, because certain blood dyscrasias have been associated with its administration, it should not be used indiscriminately or for minor infections. Furthermore, as with certain other drugs, adequate blood studies should be made when the patient requires prolonged or intermittent therapy.

References

(1) Kirby, W. M. M.; Waddington, W. S., & Doornink, G. M.: Antibiotics Annual, 1953-1954, New York, Medical Encyclopedia, Inc., 1953, p. 285. (2) Finland, M., & Haight, T. H.: *Arch. Int. Med.* 91: 143, 1953.

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EDITORIAL

Labeling For Patient Safety

by DON E. FRANCKE

The Pharmacy and Therapeutics Committee of a large teaching hospital recently passed an unusual rule concerning the labeling of medication for outpatients. This rule is as follows:

The name and strength of the medication shall be placed on all prescription labels routinely, unless the physician specifically requests that the name be withheld.

This rule was approved by the medical staff of the hospital and it thus is an operating policy which is now being carried out by the Pharmacy Department. Provision has been made to safeguard the prerogative of the prescribing physician who does not wish to have the patient know the name of the medication. The printed statement—*Do not label contents*—is included on all prescription blanks. If the physician does not wish his patient's prescription identified he merely checks the box which appears alongside of this statement. When the statement is not checked the pharmacist adds the name of the drug to the prescription label.

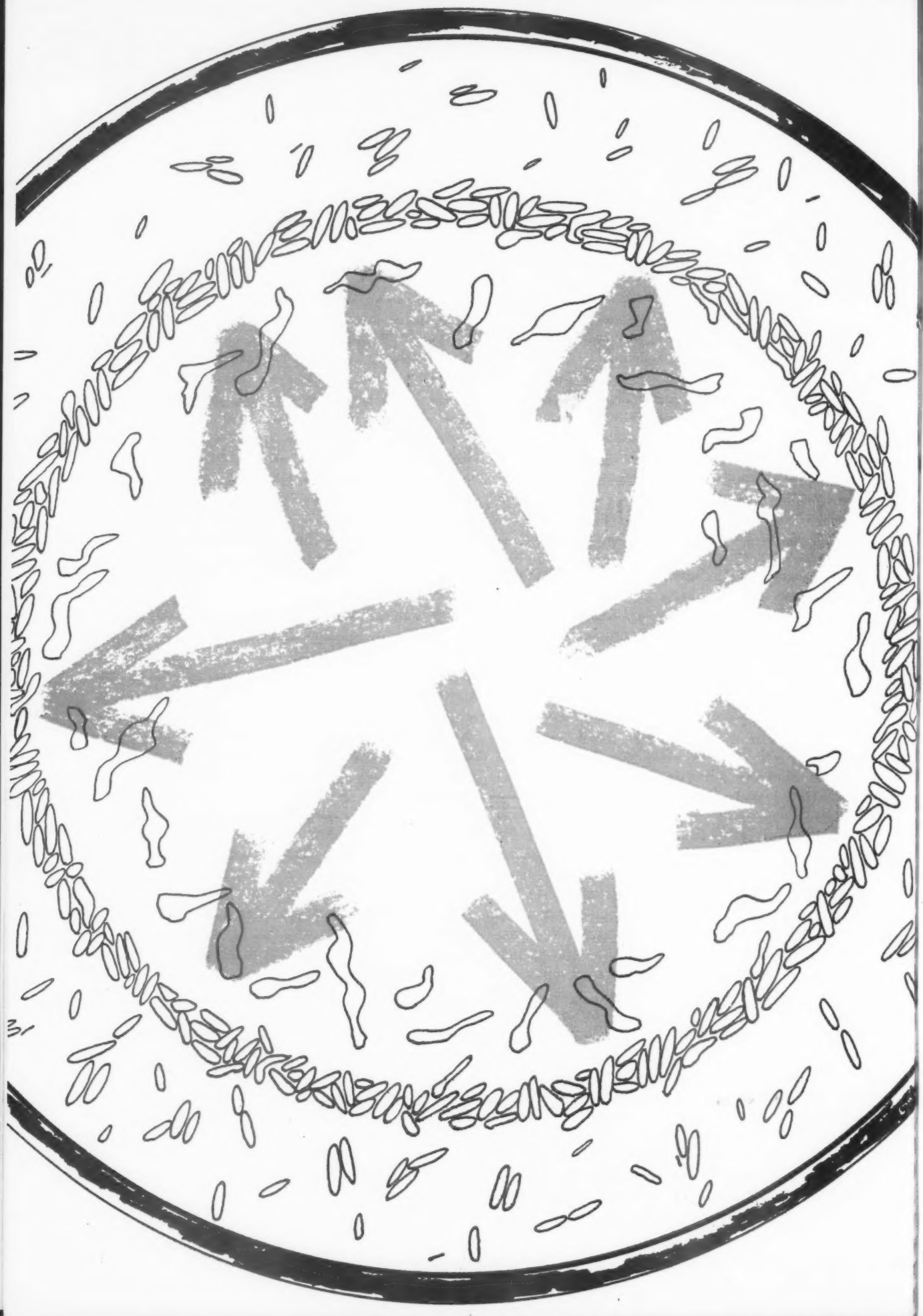
Patient safety is the principal consideration behind this new procedure for labeling outpatient medication. For example, there often arises instances in which it is vital for the attending physician to know whether or not a patient has been taking a digitalis-like drug. Numerous cases have been recorded in which failure to know whether or not the patient was taking a digitalis-like drug resulted in serious harm to the patient. There is, in fact, a long list of drugs which may interfere with diagnosis and treatment if the attending physician is not sure what medication the patient has been taking. Of course, the problem is most likely to arise when the patient changes physicians, as may often occur when the patient is traveling. Theoretically, it is always possible to determine the name of the medication by calling the pharmacy which filled the prescription. However, too often delays are costly and sometimes, for one reason or another, the pharmacist cannot be reached when the information is wanted.

A second important reason for placing the name of the medication on outpatient prescriptions is because of its value in cases of poisoning. This is especially important in the treatment of accidental poisoning in children. Approximately 2,500 deaths occur annually in the United States because of accidental poisoning in children. While it is true that numerous so-called household items may be blamed for the majority of these deaths, nevertheless, prescription medication plays its role in these tragedies. Pharmacists and other members of the public health team are all too aware of the frequency with which young children unsuspectingly consume large quantities of capsules, liquids, or other drugs from the family medicine chests. In these cases it is often life-saving if the parent can show the physician the labeled container which immediately tells him the seriousness of the case and allows him to initiate proper counter-measures without delay.

Still another reason for placing the name of the medication on prescription containers is for the purpose of clarity. How many times are patients confronted with a medicine chest full of bottles each of which says "Take one tablet three times a day"? The name of the drug would often help the patient remember which tablet he should be taking. Although we all know that old prescriptions should be discarded, it is often best to bow to reality.

There are, undoubtedly, some instances when it is advisable not to disclose the name of the drug to the patient. These situations have been provided for by the inclusion of a statement which the physician may check when he does not wish the contents of his prescription disclosed. It may be argued also that the practice of labeling prescriptions may lead to self-medication. This is, of course, a point to be considered. But since prescription-legend drugs can be obtained only on prescription, while all others can be purchased over the counter, it is possible that this danger is overemphasized.

Whether or not the practice of placing the name and strength of the medication on outpatient prescriptions is going to have desirable long-range effects must await further experience. At present, its apparent advantages appear to outweigh its potential harm — at least to the medical staff of one hospital.



TH

ANTIBIOTICS TODAY

ANTIBIOTICS continue to have a great effect on the practice of clinical medicine throughout the world. This is evidenced by the growing interest in the Annual Symposium on Antibiotics sponsored by the Division of Antibiotics, Food and Drug Administration, U. S. Department of Health Education, and Welfare, in collaboration with the journal, *Antibiotics and Chemotherapy*. At this year's Symposium during the week of October 25 in Washington, 250 investigators in 172 reports covered more than 60 clinical conditions. These reports revealed new fields of usefulness for antibiotics, confirmed areas of known usefulness, reported on synergistic and safety factors in the use of these drugs, and the introduction of new products.

Because hospital pharmacists are so closely affiliated with medical practice, an attempt is made here to present a brief account of the subjects covered. The fact that more than one-half the prescriptions written today are for antibiotics is significant to the pharmacist. He must be in a position to supply information on new products as well as follow current trends in antibiotic therapy. Information is taken from releases prepared by Dr. Henry Welch, Director of the Division of Antibiotics of the F.D.A. and Dr. Felix Marti-Ibanez, International Editor of *Antibiotics and Chemotherapy*. The Symposium covered a five day period during which time nearly every phase of antibiotic therapy of current interest was discussed by leading authorities in the field. In some cases, new products reported have reached the point of clinical trials; in other cases, only reports on the isolation and animal studies are presented. Here, new developments of particular interest to the practicing pharmacist are covered. However, as indicated in a *Summation and New Perspectives* by the above named authors, "No brief summing up can give an adequate idea of the scientific importance of the contribution made in this Symposium."

Historical Background

Dr. Selman A. Waksman, Nobel prize laureate and the discoverer of streptomycin, spoke on the historical background in the development of antibiotics both here and abroad. He placed particular emphasis on the studies undertaken between 1939 and 1954, during which years an entire new industry, that of antibiotics, began the writing of a new chapter in the history of science. Dr. Waksman further pointed out that the basis of our present knowledge, which has resulted from studies in many fields, was laid in the period from 1885 to 1939. These investigations are characterized by four fundamental aspects—the recognition of the biological aspects of the production of antibiotics; the isolation, purification, and frequently chemical characterization of these substances; the recognition of their pharmacological properties and activity in experimental animals; and their utilization or at least the establishment of their potential utilization in the control of infectious diseases. It is these four factors combined, Dr. Waksman pointed out, that helped to synthesize the accumulated knowledge of antibiotics and pointed to a new field of knowledge and application.

New Antibiotics

New antibiotics as well as new uses for those already available are of particular interest to hospital pharmacists. In presenting a brief summary of the papers covering the new antibiotics, an attempt is made to outline in as concise a manner as possible the information available. The name of each of the antibiotics, its source, uses, and when reported, clinical investigations, are covered. Further, the company or institution carrying out the work on each antibiotic is given so that hospital pharmacists will have a further source of information should the need present itself.

These new antibiotics reported at the second Annual Symposium on Antibiotics are listed below.

FUNGICHROMIN and FUNGICHROMATIN (Sharp and Dohme, Division of Merck and Company, Inc.)—are two new antifungal agents produced by members of the genus *Streptomyces.*

Fungichromin is produced in good yield by a strain of *Streptomyces cellulose.* It is a pale yellow compound containing only carbon, hydrogen, and oxygen. The empirical formula is $C_{35}H_{60\text{-}61}O_{13}$. It inhibits the growth of the following organisms: *Saccharomyces cerevisiae, Aspergillus niger, Candida albicans, Microsporum audouini, Trichophyton mentagrophytes, Blastomyces dermatitidis, Ascochyta linicola, Botryosphaeria ribis, Fusarium oxysporum,* and *Alternaria solanium.*

Fungichromatin is similar to fungichromin, having much the same antifungal activity.

SPIRAMYCINE (Rhone - Poulenc Research Laboratories, Paris, France)—is isolated from a new *Streptomyces* species, *Streptomyces ambofaciens.* From its chemical and biological properties, it appears that this antibiotic belongs to the same group as erythromycin and carbomycin. However, the ultraviolet spectrum and its composition show that it is definitely different from the two above-mentioned products. Spiramycine is especially active against gram-positive bacteria, and there is a certain degree of cross resistance between spiramycine, erythromycin, and carbomycin.

Spiramycine toxicity is low, and although its *in vitro* activity is lower than that of the above-mentioned antibotics, its *in vivo* activity against experimental infections of mice proved to be far superior to that of carbomycin and equal or superior to that of erythromycin.

First clinical results show that spiramycine is remarkably well tolerated and seems to have a definite value, especially for the treatment of infections caused by gram-positive bacteria resistant to other antibiotics.

ETAMYCIN (Bristol Laboratories, Inc.)—is a crystalline, polypeptide antibiotic isolated from fermentations of an unidentified *Streptomyces.* It is active primarily against gram-positive bacteria, inhibiting a variety of organisms *in vitro.* Etamycin is active *in vivo* in protecting mice infected with *D. pneumoniae* and the acute toxicity when given to mice is low.

Studies on blood levels show that etamycin is readily detected in the blood, urine, feces, and cerebrospinal fluid of dogs after oral dosing. Blood levels of 24 hours duration are obtained after a single oral dose of 1,000 mg./Kg. From five to fifteen percent of the oral dose is excreted unchanged in the urine during 24 hours.

Etamycin when given orally to dogs in a single dose of 1,000 mg./Kg. produces a profound and usually reversible leukopenia in approximately ten days. Daily repetitive doses of lesser amounts produce the same effect at varying times depending on the dose. A similar effect is produced in cats but not in rabbits or mice even at doses in excess of 1,000 mg./Kg.

PUROMYCIN (Lederle Laboratories, Division of American Cyanamid Company)—is reported to have significant activity against induced *Endamoeba histolytica* in the guinea pig and the rat. This is the species of endamoeba which is the cause of amebic or tropical dysentery. Puromycin is also reported to inhibit the growth of mammary adenocarcinomas in mice.

Since only two other compounds (simaroubidin and Fumidil) have been significantly effective at low dosages against the amebic infection in the guinea pig, other compounds structurally related to puromycin were tested. The only derivatives which show pronounced activity are acylated derivatives of puromycin, that is compounds in which the amino acid moiety of puromycin has been altered.

In the guinea pig, the compound (as the dihydrochloride) was tested orally establishing the minimum effective dosage for this animal at 6.25 mg./Kg. Drug toxicity in the inoculated animals (weight loss, diarrhea, death) was encountered only at 100 mg./Kg. dosage. In the rat puromycin dihydrochloride at oral dosages of 6.25 and 25 mg./Kg. twice daily for four days was significantly amebacidal. In either case the aminonucleoside at 25 mg./Kg. was not significantly effective. Pharmacologic and toxicologic studies were made on animals; however, lack of a suitable assay method has thus far precluded absorption, distribution, and excretion studies.

In the studies showing that puromycin inhibits the growth of mammary adenocarcinomas in mice, it appeared that the carcinostatic activity resides in the aminonucleoside portion of the molecule. A number of amino acid analogs were tested against transplanted mammary adenocarcinoma in mice to determine the relation of the nature of the amino acid substituent to the carcinostatic activity.

GRISEOVIRIDIN (GV) and VIRIDOGRISEIN (VG) (Parke, Davis and Company)—are isolated from two *Streptomyces,* one unidentified and the other a strain of *S. griseus.* Substantial inhibitory activity *in vitro* towards a wide range of pathogens was attained in several media. The purified antibiotics exhibited activity against vari-

NEW HORIZONS ENVISIONED

The perspective for the future is most encouraging. We can now foresee that antibiotics will be used more effectively in infections and in allied fields of medicine. We can also predict that they will continue expanding their applicability, and being combined with each other and with hormones to open new therapeutic vistas. This Symposium has thus opened great caminos reales to research, clinical practice, and teaching in antibiotic medicine. At the end of these roads new and promising horizons fan out. Research men and clinicians have sown good seeds at this meeting. With pride and hope we will await a bountiful harvest.

from: Summation and New Perspectives by FELIX MARTI-IBANEZ *and* HENRY WELCH, *Second Annual Symposium on Antibiotics, Washington, D. C. 1954*

ous bacteria and rickettsiae. GV was particularly effective *in vitro* against strains of *Clostridium, Corynebacterium, Diplococcus, Escherichia, Hemophilus, Neisseria, Shigella,* and *Streptococcus.* GV proved highly effective intraperitoneally against experimental pertussis infection in mice, and locally against clinical bovine coli mastitis.

VG was markedly active *in vitro* against strains of *Clostridium, Corynebacterium, Diplococcus, Erysipelothrix, Micrococcus,* and *Streptococcus,* and less active *in vitro* against *Act. bovis, End. histolytica,* and *Lept. icterohaemorrhagiae.* It was well tolerated locally by cows, and orally and parenterally by mice and dogs. VG was effective locally against clinical bovine staphylococcal and streptococcal mastitis, and orally against experimental staphylococcal infection in mice and intestinal amebiasis in rats and dogs. It was also active against acute experimental leptospirosis in hamsters but resulted in delayed death due to drug toxicity for this species.

PLEOMYCIN (Sharp and Dohme, Division of Merck and Company)—has been isolated from cultures of a previously undescribed species of *Streptomyces* which has been named *Streptomyces pleofaciens.* Pleomycin is active against both gram-positive and gram-negative bacteria; however, the intraperitoneal toxicity and the tissue irritation caused by local application render the therapeutic use of pleomycin unlikely.

ANISOMYCIN (Flagecidin) (Chas. Pfizer and Company)—is a monobasic *Streptomyces* antibiotic. It is inactive against bacteria, but is active against certain fungi such as *Candida* and *Saccharomyces* species. It is unique in being highly active against protozoa such as *Trichomonas vaginalis, T. foetus* and *Endamoeba histolytica.* Animal therapy experiments have demonstrated *in vivo* ability to clear subcutaneous *Trichomonas foetus* infection in mice.

Two studies on the clinical use of anisomycin in treating *Trichomonas vaginalis* are reported. In one study of twenty patients, the local application of anisomycin in two mg. amounts on alternate days was a safe and effective treatment for vaginal trichomoniasis. There was no evidence of local reaction either from chemical irritation or sensitivity to the drug and in the studies to date, there has been no evidence of parasite resistance to anisomycin.

In a second study anisomycin was administered in tablet form to over seventy patients which were diagnosed as cases of *Trichomonas vaginalis* upon examination of vaginal smear. Most of the cases had the regular symptoms: leucorrhea, pruritus, vaginitis, and dispareunia among others. Anisomycin was introduced deep in the vagina, in tablet form, three times a week for two weeks' treatment. Some of the cases treated had had trichomona infestation for several years. A high percentage of patients following treatment showed no trichomonas on examination either by vaginal smear or by direct examination of vaginal secretion homogenized with saline solution. Vaginal smears were taken after the second day of treatment, after the passage of the first menstrual cycle, and at the end of treatment, together with the saline solution technic. A few cases had temporary irritation characterized by itching or burning sensation on the day of cure; other complaints are mentioned but they are of no great importance.

Results of testing anisomycin for anti-amebic activity in guinea pigs are also reported. Anisomycin at regimens as low as 50 and 25 mg./Kg. was able to afford complete protection to a high percentage of experimentally infected guinea pigs. Higher levels were generally able to afford greater protection.

Anisomycin when combined with neomycin, polymyxin, Magnamycin or streptomycin, showed some potentiation or summation effect. Anisomycin plus viomycin or bacitracin results in a moderate degree of synergism. When combined with oxytetracycline or tetracycline, there was a marked degree of synergism.

PA-105 (Chas. Pfizer & Company, Inc.)—has been isolated from filtrates of a strain of *Streptomyces antibioticus.* It is a basic substance with an empirical formula approximating $C_{37}H_{67}NO_{13}$. An excellent therapeutic response has been obtained in the treatment of experimentally infected animals. PA-105 is principally active against gram-positive bacteria; not active against gram-negative bacteria, except *Neisseria, Hemophilus,* and *Brucella;* active against mycobacteria, rickettsiae, and large viruses; and active against certain protozoa.

PA-105 does not have cross-resistance with penicillin, streptomycin, oxytetracycline, chloramphenicol, chlortetracycline, polymyxin B, or bacitracin. However, there is cross-resistance with erythromycin and carbomycin.

CELESTICETIN (The Upjohn Company)—has been isolated from a species of soil actinomycete, *Streptomyces caelestis, Nov. Sp.* It is primarily active against gram-positive bacteria. Celesticetin is active *in vitro* against micrococci, streptococci, pneumococci, and clostridia. Bactericidal as well as bacteriostatic effects were exhibited. A penicillin-type resistance developed. There was no cross-resistance detected except between celesticetin and erythromycin-resistant micrococci.

ACTINOMYCIN C (Schenley Laboratories, Inc.)—is a highly purified crystalline antibiotic obtained from *Streptomyces chrysomallias* cultures. It has been studied in tumor-bearing mice and, in a preliminary fashion, in man. In studies still under way actinomycin C has been given to fifteen humans with a variety of inoperable or terminal malignant diseases. A child with widespread neuroblastoma had a brief remission and two patients with Hodgkin's disease are enjoying more prolonged remissions. No benefit has been observed in cases of malignant melanoma and adrenocarcinoma of the stomach or colon.

ACTINOMYCIN D (Institute of Microbiology, Rutgers University)—is obtained in crystalline form from cultures of *Streptomyces parvullus.* Methods for the isolation and purification of actinomycin D are described. Studies showed that the LD_{50} of the crystalline material for the mouse was 0.70 mg./Kg. by intravenous injection. A two-thirds reduction in spleen weight was observed in mice sacrificed on the third day, following injection of 0.5 mg./Kg. of actinomycin D.

FUNGICIDIN, NYSTATIN (Mycostatin) (E. R. Squibb and Sons)—is reported to have considerable therapeutic efficacy for mice previously infected with *Coccidioides immitis, Sporotrichum schenckii,* and *Cryptococcus neoformans.* These investigations together with earlier studies in moniliasis and histoplasmosis indicate fungicidin to be sufficiently promising to merit more extensive trial in human cases of the systemic mycoses.

AMPHOMYCIN (Bristol Laboratories, Inc.)—is the name given to an antibiotic derived from *Streptomyces canus.* Pharmacological studies are reported and it is indicated that amphomycin is nonirritating when applied topically even in rather large amounts.

New Fields of Usefulness

In addition to the introduction of new antibiotics, promising investigations are reported on new uses of these drugs. Among these are studies to determine their effect in human nutrition, their antifungal activity, and the effect of antibiotics on tumors. Also combinations of antibiotics are shown to have synergistic advantages. The most striking example of this is the fact that a mixture of oxytetracycline and streptomycin was found to be far more effective in lower antibiotic concentrations than streptomycin alone.

Further need for enhancing the safety of antibiotics is also recognized and given consideration in papers presented at the Symposium. The following suggested measures to prevent the abuse of antibiotics were stressed:

1. Eliminate the indiscriminate or incorrect use of antibiotics.
2. Provide a more systematic and comprehensive education in the field of antibiotic application at the undergraduate, graduate and post-graduate levels.
3. Provide for wide dissemination to the public of the fact that *self-medication is dangerous* and that the common practice of demanding antibiotic medication from physicians should be abandoned.
4. Properly label all antibiotics with warnings as to possible toxic reactions and the dangers of indiscriminate use.

Clinical accomplishments of penicillin, streptomycin, and established broad-spectrum antibiotics were further confirmed by results of studies reported at this meeting. There was mounting evidence of their value in such clinical conditions as pneumonia, prevention of recurrences of rheumatic fever, venereal diseases, amebiasis, urinary tract infections, gastrointestinal tract infections, obstetrical and pediatric infections, tuberculosis, and a wide variety of topical infections.

As mentioned above, the effect of antibiotics in human nutrition is a new field. A controlled study carried out at Western Reserve University demonstrated that low concentrations of antibiotics stimulate growth in undernourished children. Over a period of three years "low-level" anti-

biotics (*e.g.*, oxytetracycline, 10 to 50 mg./child/day, orally) and other dietary supplements were administered to children. Evaluation of the results in children affected with so-called "Simple Growth Failure" showed response.

The value of erythromycin in the treatment of common respiratory infections is reported. Papers deal with its value in amebic dysentery, its use in the pediatric age group of patients, and the pharmacology of erythromycin following both oral administration and parenteral use.

A number of studies on oxytetracycline alone and in combination with other chemotherapeutic agents are reported. These include the treatment of meningitis, oral surgery, amebiasis, and urinary tract infections, and its use in rheumatic fever.

A combination of intra-arterial antibiotics (chlortetracycline and tetracycline), intra-arterial nitrogen mustard, and radiation therapy, when used in the treatment of malignant tumors, showed excellent results. The necessity for adequately treating infections arising in the oral cavity and in the uterine cervix prior to radiation therapy has been recognized, and it is stated that the use of intra-arterial antibiotics has materially contributed to the success of the method employed.

In discussing the rationale of using combinations of antibiotics in the treatment of infections. Dr. Frank Melaney and Balbina A. Johnson, discoverers of bacitracin, point out the need for simple laboratory tests in determining the organisms present and their susceptibility to the available antibiotics. Also, if a mixture of antibiotics is employed in the treatment of any infection, the action of the antibiotics should be known—whether they be antagonistic or synergistic or indifferent to one another.

Use of tetracycline covering the entire gamut of susceptible diseases is discussed in a series of papers. The usefulness of this drug in the treatment of rickettsial and bacterial infections, pustular dermatoses, gonorrhea, and acne vulgaris is demonstrated.

Tetracycline was also evaluated in pediatric practice, the major cases studies being aphthous stomatitis and impetigenous rashes. The children ranged in age from four months to five years, and the dosage was 62.5 mg. four times daily for those under thirty pounds, and 125 mg. four times daily for those over thirty pounds. Additional medication included adequate aspirin, and in those children who were able to gargle, the routine use of a common mouth wash diluted with peroxide and water. A final evaluation of tetracycline oral suspension in pediatric practice shows: 1. a rapid clinical response to oral administration, as evidenced by temperature drop; 2. a minimum number of failures or relapses; 3. a short period of administration; 4. a wide range of effectiveness; 5. minimum side reactions; and 6. palatability, meaning acceptable by both the pediatric patient and the mother.

Combined hormonal-antibiotic therapy in individuals having infections of more than usual severity is reported to result in a decrease in morbidity and mortality. On the basis of four years of observation, the following conclusions are reported: 1. administration of corticoids to patients with severe infections will result in rapid and striking clinical improvement, *i.e.* lessened systemic toxicity; 2. if specific antibiotics are co-administered, it appears that mortality and morbidity can be diminished without any demonstrable untoward effects of the corticoid; 3. in order to obtain this type of effect, it is essential that a precise program be followed including the use of high calorie, high protein, high potassium, low sodium intake; the administration of corticotropin for at least one day longer than cortisone, to prevent any residual adrenal atrophy; and the administration of specific antibiotics for at least three days after all corticoids have been discontinued, to adequately protect against any dissemination of the infection which might result from the residual effects of the corticoid.

Additional studies on the use of combined hormonal-antibiotic therapy are also reported. These cover the treatment of infectious mononucleosis, skin diseases, and ocular infections.

Uses in Other Fields

Mention is also made of the fact that antibiotics have made appreciable strides in the field of animal husbandry to control a wide range of infectious diseases, and in botany, to stimulate plant growth.

IT IS STILL TOO EARLY to write a closing chapter to antibiotics. Their research origin and their spectacular development precludes objective writing about them. Thousands of laboratories throughout the world are engaged in searching for antibiotics. New ones are discovered almost daily. Many problems still await solution, notably their mode of formation and mode of action. A chapter in the history of science is being written before our eyes.

—SELMAN A. WAKSMAN

Codeine Cough Syrup

Ingredients —

.25 Gm. Cod. Phos.	.14
5 ml. Spt. Chloroform	.03
8 ml. Glycerin	.04
120 ml. Cherry Syr.	.12
Container	.03
Labor	.75
Overhead	.19
Rx Break-even cost	1.30
P. mark-up	.25
Rx Price to Patient	$1.55

14
4/56

a new approach to

COSTING AND PRICING PRESCRIPTIONS

in the hospital pharmacy

by S. B. JEFFRIES

ECONOMIC AND SOCIOLOGICAL CONCEPTS dealing with public health and medical care are being critically evaluated in terms of the needs of a more health-conscious, better informed, growing, and aging population. One of the most important aspects of this overall problem is the growing sensitivity of the public to the "high cost of medical care." Obviously, the contributions of the health professions, their associated technologies, and their facilities are being scrutinized and measured not only by standards of community health and welfare needs, but also by a harsh economic yardstick.

Of the nation's medical expenditure of $10.2 billions, $2.5 billions, or roughly 20 percent, was spent on hospital services . . . a tidy sum. It is interesting to note that from 1945 to 1954, hospital charges have increased 161 percent as compared with 37 percent in physicians' fees, a 25.2 percent increase in medicine costs, and a 44 percent increase in dental fees. Commodity prices rose 49 percent during this same period. Under the circumstances it is easy to see why the economics of hospital operation have attracted singular interest.

With the fabulous growth of drug therapy in modern medical practice, particularly in hospitals, the pharmacy service has become one of the most important professional as well as economic units in the hospital structure. As a matter of fact, it is not unusual to find the hospital's over-all profit and loss picture turning on the operational efficiency of this one service. It is true, of course, that many tradition-bound administrators have not yet come to appreciate the value and importance of this service; but it is equally true that many hospital pharmacists have themselves failed to properly develop the value of this service to its fullest potential.

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Importance of Facts

Leaving the question of developing the professional potential to those better qualified to handle it, let's turn to the problem of economic potential. No one will, I am sure, take issue with the fact that an efficiently run and profitable pharmacy service is an invaluable asset to the administrator who has the unpleasant job of explaining and justifying hospital financial statements to his board of trustees. Clearly then, the proper costing and pricing of the drugs and medicines dispensed, with a view towards providing administration with an operating profit, is perhaps the most critical phase of the economic potential problem we spoke about a moment ago.

On this score, the preliminary report of the Joint Survey Committee on Hospital Pharmacy Administration, sponsored last year by the New York and New Jersey Hospital Pharmacists' Associations, revealed a most serious state of confusion about the basic elements and mechanics of prescription costing and pricing. Many schedules were old-fashioned; some were so complicated that their use was limited. But most significant was the fact that all but four schedules appeared to have *no relationship* to the pharmacy's actual operating-cost factors.

The consensus could be summed up in such remarks as: "All I use the schedule for is a guide

. . . we don't know our break-even costs"; "We use the Geiger counter on some prescriptions and make our own adjustments on the rest"; "I use my own system . . . it seems to be O.K. . . . don't know whether we made a profit or not last year"; "We price our prescriptions as close to the retail price as we can . . . we let the bookkeeper worry about profits"; "On inpatient prescriptions we add 50 percent to the cost of the ingredients, or something like that, and let the front office worry about the rest." And so on, *ad infinitum*.

Probably the toughest problem confronting us in establishing a sound, practical, and profitable prescription costing and pricing policy is that of reaching and opening the minds of the men and women to whom a particular pricing formula has become second nature. But times have changed. Drug dispensing is big business in any hospital . . . and guesswork in costing and pricing medication is on the way out. My only purpose in presenting this paper is to throw some new light on the problem, raise a few questions, and stimulate some constructive thinking on the subject.

Fundamental Factors

There are, regardless of the size or complexity of the pharmacy operation, certain common and fundamental factors that go into the costing and pricing computation of every prescription. The underlying theory supporting this statement is that inpatient and outpatient prescription dispensing, regardless of whether the prescription calls for a prefabricated or compounded medicine, or whether it is prepackaged in the pharmacy or dispensed from bulk on order, is still basically a manufacturing operation. As such it calls for the application of standard cost accounting procedure tailored to fit the highly specialized practice of dispensing and costing a prescription—and by costing, we mean computing the prescription cost of goods sold (or dispensed). Please, let's not be scared off by the use of the term "cost accounting."

Included in this basic prescription cost-of-goods-dispensed figure are the following cost components:

1. The cost of ingredients.
2. The cost of the container.
3. The cost of direct labor expended on the prescription or prepackaged prescription item.
4. The overhead charge per prescription, *i.e.* the prescription's share of the pharmacy department's expense burden.

The total of these four cost figures composes the true prescription break-even cost. Dispensing a prescription, prepackaged or otherwise, at or below the break-even cost is a "sale," as it were, at no profit or at a loss. The difference between the prescription's break-even cost (cost-of-goods-sold) and the price charged to the patient is the net-profit-margin or professional fee earned on the prescription.

In pricing any prescription or prepackaged item, the break-even cost is computed first. It should be clear that the cost both of ingredients and container depends, for the most part, on invoice data. Both cost components are easily ascertainable if the merchandise is properly coded.

It is equally clear that time costs money and that each prescription transaction must bear its share of the total professional and/or technician's wages based on the actual time consumed or put into the compounding, dispensing, or prepackaging of the prescription item. To compute the cost of direct labor applicable to the prescription, the time (in number of minutes) spent on the prescription or prepackaged prescription item is multiplied by the "per-minute-labor-cost." This per minute cost figure depends entirely on the hourly wage rate paid to registered and nonregistered (technical) personnel.

Experience indicates that for the purpose of determining a more realistic professional per minute cost of labor figure, the actual wage rate paid to registered personnel should be increased by 45 to 50 percent. This will compensate for the time spent by the pharmacist on nonprofessional work. For example: where the actual wage paid to registered personnel is $2.50 per hour, the "adjusted" professional hourly wage rate used for computational purposes should be $3.75 per hour, or a per-minute-cost-of-labor of 6¢ ($3.75 ÷ 60 minutes). To compute the per-minute-cost-of-labor for a technician divide his hourly wage rate by 60.

Overhead Cost

The overhead-cost-per-prescription charge provides, as we have said before, a means of distributing the pharmacy department overhead (excluding wages) costs among all prescriptions including those prepackaged in readiness for dispensing. This charge is determined by dividing the allocated overhead cost figure of the department by the number of prescriptions—including prepackaged items—the pharmacy anticipates that it will dispense during the base overhead-cost period. For example: assume, on the basis of past experience, that the pharmacy anticipates dispensing a daily average of 200 prescriptions for the next 90 days . . . or a total of 18,000 prescriptions; assume also an overhead cost figure of $4,200 for this same period . . . (estimated cost of overhead, less wages of pharmacists and technicians, is normally supplied by the comptroller or administrator). Divid-

ing the overhead cost figure of $4,200 by the estimated 18,000 prescription figure, we get an overhead charge of $0.23 per prescription. This cost, like the per minute cost of labor, is a constant that remains fixed until the figures they are derived from change.

This overhead charge (of $0.23 in the above case) applies to every prescription dispensed—and to every item of medication prepackaged for the purpose of dispensing during the particular overhead-cost period involved. The theory permitting such on overhead allocation per package on prepackaged items is the assumption that the prepackaging schedule *in toto* and per particular item is based on anticipated prescription needs for that particular period based on past experience. Might I mention that this theory of overhead-cost allocation per prepackaged item has been applied practically by Mr. Robert Bogash, Pharmacy Director of Lenox Hill Hospital, New York City, with salutary results.

Actual Cost

Since the prescription break-even cost (the sum of the four costs mentioned) is the *actual cost of the goods* to the hospital in a true professional manufacturing sense, a professional fee or net profit margin must be added on to the break-even cost of the prescription to arrive at the final price to the patient. The professional fee margin or markup schedule for inpatient and outpatient prescriptions should be planned in consultation with the comptroller or administrator. Some pharmacists and administrators favor the idea of a "flat" fee markup on break-even cost; others favor adding a percentage markup of break-even cost as a professional fee.

In any event, the use of the Jeffries Break-even Prescription Costing and Pricing Method permits, for the first time, a reasonable opportunity for sound profit planning by the pharmacist together with the hospital administrator. For example, if the inpatient prescription profit plan decided upon were fixed at 20 percent of dollar volume, a markup of 25 percent of break-even (cost) of each prescription would have to be added to the actual break-even cost of every prescription dispensed or prepackaged in anticipation of dispensing. For a 10 percent planned profit on outpatient prescription dollar volume, a professional fee markup of 11 percent of break-even cost would have to be added to the prescription's actual break-even figure.

Where the hospital works on a "free floor stock" system, the planned profit markup or professional fee schedule should be upped slightly to at least partially off-set this cost drain on the pharmacy's operational figures.

TABLE I

Form recommended for use in pricing prescriptions

1) **The cost of ingredients**	_____
2) **The cost of container**	+_____
3) **The cost of labor for dispensing time required at *prescribed* cost per minute**	+_____
4) **The overhead charge per Rx at *prescribed* overhead cost per Rx transaction**	+_____
PRESCRIPTION BREAK-EVEN COST	_____
5) **Professional fee markup at prescribed percentage of break-even cost, or flat fee**	_____
PRESCRIPTION PRICE TO CUSTOMER	_____

TABLE II

Pharmacy Prepackaging Record and Control Form

NAME OF ITEM _____

NO. TABS., CAPS., VOL. LIQ. _____

SERIAL NO. ORIGINAL UNIT _____

SIZE OR STRENGTH _____

MFG. ORIGINAL UNIT _____

SIZE CONT. USED _____

NO. UNITS PREPACKAGED _____

TIME SPENT IN HOURS _____

COST OF INGREDIENTS _____

COST OF CONTAINER _____

COST/LABOR PER UNIT _____

OVERHEAD CHARGE/UNIT _____

BREAK-EVEN COST/UNIT _____

PROF. FEE MARKUP _____

PACKAGE PRICE/UNIT _____

PREPACKAGED BY _____

DATE PREPACKAGED _____

COMMENTS _____

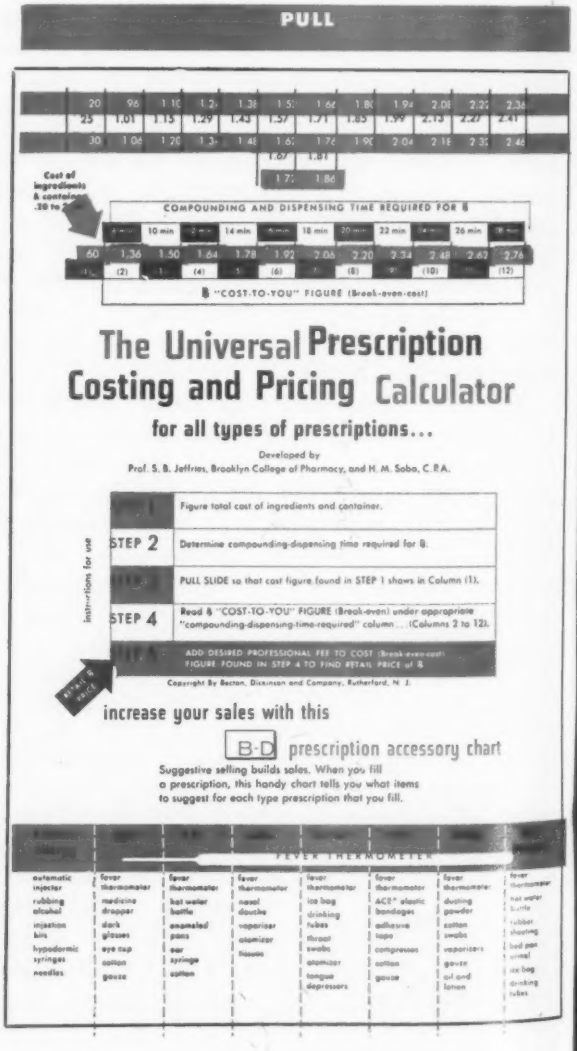
Computing Price

As a practical matter, the Jeffries Method of Costing and Pricing is very simple to use. The computation of final price for individual prescriptions should take no more than a half-minute. It could be run up on the prescription itself, or computed on a scratch pad form as illustrated in Table I. To arrive at the break-even cost of any prescription, you merely add: cost of ingredients, cost of container, cost of labor (depending on how many minutes were required to dispense the prescription at so many cents per minute) and cost of overhead per prescription. Next, add the planned professional fee-net-profit-margin decided upon, and there you have an accurate price, easily explained and quite defensible accounting-wise.

For costing and pricing prepackaged medication a permanent record form should be used showing not only the actual costing data and professional fee markup . . . and the price to the patient, but production control data as well. This is shown in Table II.

May I stress one point. The heart of this costing and pricing method is the computation of the break-even cost—and knowledge of this figure takes all the guesswork out of costing the prescription and pricing it to the patient. If you are really attached to the schedule or system you are using, by all means continue using it. But take the time to cross check the reasonableness and profitability of your prices against an actual break-even cost computation on a series of prescriptions. With knowledge of the break-even cost you can keep your pharmacy operation in the black and *know it*. And of course, knowing the break-even cost will permit you to keep a running tally of prescription losses where, because of hospital policy, you must dispense them below cost. With this prescription information you are certainly in a better position to explain and justify your costing and pricing technics to administration and support any requests you may make.

The figures which appear on the calculator as the prescription breakeven cost figures are not meant to be the final price to the customer, but serve only as a guide in determining the final price. The calculator takes the cost of ingredients, container, overhead cost, and, according to the time used for compounding and dispensing, provides the prescription break-even cost figure to which the individual pharmacist adds the professional fee desired to meet local and individual conditions. The calculator operates in four step: 1. Figure total cost of ingredients and containers; 2. Determine compounding-dispensing time required for the prescription. 3. Pull slide (see illustration) so that cost figure found in Step 1 shows in the left hand column. 4. Read break-even cost figure shown under the appropriate compounding-dispensing time column. To this break-even cost figure is added the desired professional fee or mark-up to arrive at the final price to the customer. This six by nine inch calculator is available upon request from Becton, Dickinson and Company. Rutherford, N. J.



Calculator

Some of you may be familiar with the Universal Prescription Costing and Pricing Calculator which we developed as a shorthand application of the method we've been discussing. It was described in detail in THE BULLETIN OF THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS (Sept.-Oct. '53). It enables the pharmacist to determine instantly the break-even cost on any and every kind and type of prescription filled. It eliminates any arithmetical computation. Over 20,000 Calculators have been distributed on request from Becton-Dickinson & Co. They are available on request.

Now for a quick run down on some interesting questions on this method.

QUESTION.—*In fixing cost of ingredients, should quantity purchase price advantages be passed on, or should "cost" be based on normal quantity wholesale price?*

ANSWER.—As close to normal wholesale price as possible since increased turnover cost eventually absorbs a substantial part of initial price advantage (as dwindling stock balance runs into second and third turnover period).

QUESTION.—*Won't the cost of labor factor vary in any dispensing or prepackaging operation with the degree of efficiency of personnel?*

ANSWER.—Yes. But this cost factor can be standardized by development of a "Prescription Performance Time-Norm Schedule" for major classifications of prescription and prepackaging operations. Such a time study was prepared by the Department of Pharmacy Administration at Brooklyn College of Pharmacy in 1953 at the request of the New York State Department of Social Welfare covering retail prescription compounding and specialty dispensing. Copies are available from the Brooklyn College of Pharmacy.

QUESTION.—*How can you justify a $1 to a $1.50 charge for a penicillin shot that costs 5¢?*

ANSWER.—You can't as long as syringe, needle, sterilization, and nurses time costs are, by policy, lumped into the prescription charge instead of being properly allocated to nursing service and central supply. This administrative peculiarity not only throws the Pharmacy's profit picture off, it opens it to severe public criticism as well.

QUESTION—*How would you treat the O.P.D. and indigent patient problems?*

ANSWER.—Where the hospital is part of a teaching school and low drug prices are a means of attracting patients to clinics, break-even cost should be the price floor; 10 percent markup of break-even should be ceiling. The same considerations apply where the hospital is heavily subsidized by public funds.

QUESTION.—*Should prescription prices to inpatients using unusually large quantities of an expensive drug like cortisone, for example, vary from the predetermined prepackaged price set on normal quantity of 20 to 25 tablets?*

ANSWER.—Common practice is to treat the prescription as though it were being filled from bulk and charge a lower price than the total price of the four separate, prepackaged bottles of 25's. The pharmacy may take a temporary beating on overhead and labor charges attached to prepackaged bottles, but the applicable cost factors adjust themselves over the long haul.

QUESTION.—*What financial controls are necessary in working out a general costing and pricing method like the one described?*

ANSWER.—The pharmacy service should have: 1. a comprehensive inventory control system to provide a sound basis for the exercise of judgment on fixing ingredient and container costs and for purchasing; 2. a breakdown of professional and technician wages to permit an accurate per-minute cost analysis; 3. a planned profit objective to enable the pharmacist to work out a suitable professional fee or percentage markup schedule.

QUESTION.—*How does one handle a comptroller who has adopted the view that a 40 percent markup on cost is standard practice?*

ANSWER.—Point out that this type of computation is applicable to pricing ordinary merchandise and not prescriptions. Show the comptroller how the application of this inflexible markup cuts deeply into pharmacy profits, particularly where the cost of ingredients is low . . . *i.e.*, when markup literally fails to cover overhead and labor costs applicable. Prove point with examples: when drug ingredients cost $.80; at 40 percent markup, patient price would be $1.12. Applying Jeffries Method: 80c + 10¢ (container) + 20¢ (labor, 5 minutes at 4¢ per minute) + 23¢ (overhead charge per prescription) equals break-even cost of $1.33. At $1.12 the prescription is being dispensed at a loss to the hospital of 21¢. This is the kind of cost argument he will listen to.

I am sure that there are many other problems that are just as interesting, but time has flown. However, before I leave, I want to take a moment to express my deep thanks to Mr. Bogash of Lenox Hill Hospital for the help he gave me in marshalling and directing my thoughts and ideas into channels that were expressed in this paper.

Two styles of large plastic containers commercially available for use in hospital pharmacy.

the use of POLYETHYLENE PLASTIC in the hospital pharmacy

by JOHN W. WEBB

POLYETHYLENE PLASTIC is being utilized in many different fields. To understand its advantages and limitations in the field of hospital pharmacy, an understanding of its physical and chemical properties is necessary.

Properties

Physical Properties: Polyethylene is flexible, light-weight, translucent, white, and relatively nonbreakable. Its flexibility is retained from -70° C. to 90° C. A polyethylene container has no pores for infiltration of either dirt or product. It is permeable to and/or affected by certain compounds such as toluol and benzin. Permeability has been defined as "that quality of a material (in this case polyethylene) which permits the passage of other materials through it without gross physical or chemical effects." The permeability factor is commonly expressed in gram loss (or gain) per 24 hours for 1 ml. thickness for 100 square inches at the temperature specified. The permeation of molecules through a polyethylene barrier is considered to be an activated diffusion process in which the permeating molecules first dissolve, then diffuse through from the region of high concentration to the region of low concentration and finally evaporate from the outside surface. It was found, in general, that the more polar a molecule is the slower is its transmission rate. Also, molecules having greater size are transmitted more slowly. As the temperature is increased, the rate of transmission is also increased. The rate of transmission is roughly doubled for every 6 to 10° F. rise in temperature. Generally, the larger the container the slower the transmission rate. Permeation is usually faster from the liquid phase than from the vapor phase. That is, a bottle three-quarters full will tend to lose weight by permeation faster than when it is only one-quarter full.

Chemical Properties: Because they are essentially saturated hydrocarbons, polyethylene resins are closely related to and exhibit many of the properties of high molecular weight paraffin waxes. Polyethylene is inert

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and insoluble in all organic solvents at normal room temperature, but begins to dissolve in a number of solvents at temperatures of 50 to 60° C.

Investigation of Uses

In 1951, the Hartford Hospital initiated an investigation regarding the use of polyethylene in the field of hospital pharmacy. It was opportune that the Plax Corporation located nearby was willing to cooperate in solving certain problems. Labeling was an early problem. There are several solutions to the problem of labeling. Gummed paper, adhesive labels, or decalcomanias may be applied. Silk screen direct printing or the hot stamp printing process may be preferable. The outer surface of the container itself is treated either in whole or in part so that paper labels will adhere.

The glass jugs that held soap and aqueous benzalkonium chloride solutions had the highest incidence of breakage, due in part to the slippery film which accompanies any overflow or spilling of the contents. One-gallon polyethylene plastic bottles have been used satisfactorily for these two solutions for nearly three years. The soap bottles were printed by the silk screen process while the bottles holding the benzalkonium chloride solutions have borne paper labels.

Four-ounce polyethylene containers were used satisfactorily for medicated alcohol, but over a period of time these bottles "disappeared." It is probable that their size and attractiveness were irresistable to some of the many people who handled them.

Certain physicians have indicated a preference for a spraypak container for nasal solutions. A number of our nasal solutions are either prepared or bought in large volume and then packaged into small plastic containers having nasal spray plugs. This effects a saving while allowing better and more flexible service to the patient and the physician. Plastic containers for nasal sprays are useful in pediatrics for they eliminate the problem of placing the child in the specific position needed for correctly applying nose drops. The patient is not subjected to having the excess solution run down into his mouth and throat as is commonly the case with drops. There is always the hazard that an uncooperative child may be cut if he twists his head when the glass dropper is near his nose. This hazard is absent when polyethylene is used.

Polyethylene pipettes are used routinely for ophthalmic dropper assemblies. If the dropper is too long for the glass bottle in which it is inserted it will tend to bend, not break. Polyethylene contains no extractable constituents that may affect *p*H-sensitive preparations. Consistent drop size is another favorable factor.

A polyethylene faucet was welded into the side of a plastic pail in an attempt to make a bucket for manufacturing use. While usable, the faucet has proved not to be as satisfactory as stainless steel. It has been noticed that after calamine lotion was manufactured the calamine apparently penetrated the plastic for the bucket seemed to bleed. This caused no permanent problem but calamine lotion is no longer prepared in this container.

Polyethylene funnels have proved satisfactory for the purposes used. It might be noted that the gallon-sized funnel has no grooves to permit air to escape.

A six and one-half gallon carboy was purchased a year ago for testing purposes, prompted by the fact that one of our pharmacists was badly cut by a broken five-gallon glass carboy. A short piece of polyethylene plastic tubing was welded into the side near the base by a local plastic welder. This tubing was tapered on the outboard end and corrugated in a manner suitable for holding rubber tubing firmly, similar to the outlet of an aspirator bottle. Now that five-gallon polyethylene carboys are available, they are gradually replacing our glass carboys. The nipple outlet has decreased our filling time as compared to the previous method of siphon filling. The ease of filling is reflected in departments such as the operating rooms where the personnel prefer this method over siphon filling or pouring.

PERMEABILITY OF PHARMACEUTICALS COMMONLY USED IN HOSPITALS

CALCULATED PERCENT WEIGHT LOSS FOR 1-YEAR STORAGE AT ROOM TEMPERATURE

PRODUCT	% LOSS	COMMENT
Carbolic Acid (Liquid)	1.71	Satisfactory
Medicated Alcohol, 70%	4.96	Satisfactory
Alkaline Antiseptic Solution (Mouth Wash)	2.01	Unsatisfactory, due to loss of aromatics
Liquid Soap	1.07	Satisfactory
Bichloride Mercury 1:1000 Solution	0.88	Satisfactory
Benzalkonium Chloride Aqueous 1:1000	1.34	Satisfactory
Benzalkonium Chloride Tincture 1:1000	5.26	Unsatisfactory
Magnesium Sulfate, Saturated Solution	0.71	Satisfactory
Witch Hazel	1.09	Unsatisfactory, due to loss of aromatics

Summary

Polyethylene plastic has proved to be a valuable adjunct to good hospital pharmacy service. The future possibility of obtaining polyethylene containers suitable for autoclaving appears to be good and presents a most interesting potential for disposable sterile ophthalmic containers.

Suggestions for Correcting INCONSISTENCIES in Hospital Formularies

by EDWARD A. HARTSHORN

THE *United States Pharmacopeia* and the *National Formulary* are the legal standards for drugs and chemicals in the United States of America. Their purpose is to provide uniform names and strengths and, in some cases, uniform formulas and working directions for the manufacture of preparations frequently prescribed by physicians.

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The hospital formulary, in a sense, provides a similar service to the pharmacist, physician and nurse of the particular hospital wherein the formulary is used. The hospital formulary also lists dosage forms available and, frequently, administrative or precautionary instructions concerning certain specific drugs.

There are instances when individuals other than those directly associated or familiar with a hospital and its formulary have occasion to read, review, or use that formulary. Also, often a physician is

a staff member of more than one hospital and, consequently, is exposed to more than one formulary. Medical interns and residents and members of the nursing staff of a hospital have to use different formularies when they move from one hospital to another. These people frequently discover that the hospital formulary is confusing, and sometimes find it difficult to locate a certain drug or preparation.

Although several papers concerning formularies have appeared in print, few discuss specific points which aid one in developing a formulary or point out inconsistencies in existing formularies. After all, in the developing stages, one invariably models his formulary after those which are reviewed. It is extremely important to remember that the formulary is developed for the physician and nurse to use, and not solely for the pharmacist's own reference.

In 1944, Sister Mary Concepta Maher reviewed twenty formularies "to ascertain the desirability of a methodically standard formulary". In the resultant thesis[1] she made some suggestions which are well worth repeating. In brief, these are:

1. The formulary should be a loose-leaf type so that new pages may be added when required (similar to drug catalogs).
2. The first edition of the formulary should be mimeographed. Subsequent editions should be printed.
3. The color of the binding should be in keeping with the hospital colors or should be a scholastic green.
4. The formulary should include a foreword, a policy section, a pharmacological index, conversion tables and approximate equivalents, an antidote index, Latin abbreviations, and an alphabetical index.
5. The formulas should have specific titles; they should not be numbered.
6. All figures should be in the metric system.
7. Expensive medication should be starred.

In a more recent review of sixty formularies this author has noted many inconsistencies. The need for certain standardized sections in formularies and the desirability for consistency in various phases is obvious to one who examines a formulary. It is the purpose of this paper to present samples of some of the inconsistencies noted and to suggest means for the improvement and standardization of hospital formularies.

Title Page

The first thing one notices when picking up a hospital formulary is the title page, which often reads:

Drug List
of the
Memorial Hospital

That's all! The very next page either begins immediately with the listing of drugs or else a page stating the policies of the hospital or pharmacy.

Another example is:

Formulary of
University Hospitals
1950

If you live in Philadelphia, Cleveland or Ann Arbor, the term "University Hospitals" has (to you) only one meaning. But if you live in Esterville, Iowa, or Fayetteville, Pennsylvania, or Hope, North Dakota, just where is "University Hospitals"? In Chicago, is this the hospital affiliated with the University of Illinois or with the University of Chicago?

A series of questions might be asked about Memorial Hospital. Where is it and how old is the formulary? When was the formulary published? 1927? 1947? 1953?

Here, then, is the first recommendation. The title page of the formulary should include the name of the hospital or hospitals which the formulary represents, the city and state wherein the hospital (s) is located, and the date of publication of the formulary.

Index

Alphabetical index should be an integral part of each formulary no matter whether the drugs are listed alphabetically or therapeutically. This index should be as complete as possible and should be thoroughly cross-indexed. It should include not only proper names, synonyms, proprietary names, etc., but should include key words and phrases of the introduction and policy section. Then, if an intern wishes to read about, say, the Harrison Narcotic Act and the hospital's policy on narcotic prescriptions, a glance at the index will indicate exactly on which page the information can be found.

Important ingredients in formulas should be included in the index. However, the page where the chemical is but an ingredient in a formula should be in lighter type than the page referring to the monograph of the drug. Does this recommendation seem superfluous? If so, then try to find Suby's Solution "G" (and approximately 40 percent of those formularies reviewed included this preparation) in several formularies picked at random. The formula for Suby's Solution "G" might be found in the therapeutic index under Genitourinary or Urinary drugs if there is such a section.

(1) Maher, Sister Mary Concepta, "The Problem of Hospital Formularies as Related to a Certain Group of Hospitals", a thesis presented to The New Orleans College of Pharmacy, Loyola University of the South, New Orleans, La., 1944.

If the therapeutic index is set up along the lines of the *N.N.R.*, it is difficult to know where to look. If we refer to the regular index (if there is one) is this preparation found under "Suby's Solution", "Albright's Solution", "G Solution", "Buffered Citrate Solution", "Compound Citric Acid Solution", "G. U. Solution", "Magnesium-Citrate Mixture", "Bladder Irrigant Mixture", or what?

The index preferably should read something like this:

Citric Acid, 77
with Magnesium Oxide and Sodium Carbonate, 104
in Suby's Solution "G", 104
Syrup, 78
or:
Bladder Irrigant Solution, see Suby's Solution "G", 104

The desire to include a pharmacologic and therapeutic index presents some difficult problems. Just how should this index be set up? Many hospital formularies list their formulary items in the therapeutic index style. The most essential feature in a therapeutic index style is the alphabetical index which must be included at the end of the formulary. The *N.N.R.* is an excellent guide to follow in the initial formulation of the therapeutic index; however, for most hospitals it is inadequate. The addition of a section of drugs used in ophthalmology, otology, dermatology, etc., should be included. Another way of listing the drugs is by their use according to the mechanism by which they exert their influence. Probably the final decision will be up to the Pharmacy and Therapeutics Committee and the hospital medical staff.

Title Designations

Since the *U.S.P.* and the *N.F.* are the official standards, and the *N.N.R.* a nonofficial standard, why not give a formula proper recognition and put "*U.S.P.*", "*N.F.*" or "*N.N.R.*" after it if it meets the specifications of these standards. Otherwise, initial it as a formula peculiar to that hospital in whose formulary it appears. Then, when the physician prescribes a medication for an outpatient or for one of his patients in his private practice, he will know that "Phenobarbital Elixir U.S.P." is available in one strength and color from all pharmacists and that a standard product will be dispensed without question when just the above words are written. "Aluminum Paste M.H.", on the other hand, signifies that it is a product made by the pharmacy at Memorial Hospital and is not generally obtainable in retail stores unless the physician prescribes the medication by its entire formula. Of course, the patient could get such a prescription filled at the hospital pharmacy or the retail druggist could call the hospital pharmacy and obtain the formula.

Inconsistent Nomenclature

Inconsistency seems to be the bug-a-boo of hospital formularies. It seems to be a special delight of the hospital pharmacist to mix things, especially English terms with synonyms, English terms with Latin terms, and the various systems of weights and measures.

The intermingling of *U.S.P.* English names and synonyms is common, and frequently the same formulary will use the English title in one formula and the synonym in another. The term "Wintergreen Oil" should be included in the index which should refer one to the Methyl Salicylate monograph. The synonym "Wintergreen Oil" should be denoted as a synonym in the Methyl Salicylate monograph, but, in the formulary we should *not* see:

Alum Powder ———
Boric Acid Powder ———
Phenol ———
Oil of Wintergreen ———

and then find another monograph:

Methyl Salicylate ———
Petrolatum, q.s. ad. ———

As long as we are using the official title, why not use the term "Peppermint Oil" rather than "Oil of Peppermint," "Belladonna Tincture" rather than "Tincture of Belladonna," "Saccharin Sodium" rather than "Saccharin Soluble," etc. Carbolic Acid, Liquor Carbonis Detergens, Benzocaine, Lime Water, Cocoa Butter, etc. *ad infinitum* are frequently seen. Admittedly, these are minor and trivial points, but why not be consistent and use the *official U.S.P.* or *N.F.* title, or the *N.N.R.* generic name, if applicable, for a drug. If a formulary includes a "Calamine Lotion," why does it include a "Lotio Alba" rather than a "White Lotion?" Can we blame a nurse who questions us when she orders "White Lotion" and receives "Lotio Alba?"

A slight modification of the above complaint is "Oint. Zinc Ox." Why not use the proper term "Zinc Oxide Ointment?" Why abbreviate at all? Or, if you must abbreviate, use abbreviations which fit the official title, which are descriptive and not easily mistaken for something else. Abbreviations can be very deceptive and can cause serious errors. We all know that Mag. Sulf. means Magnesium Sulfate, and that Sod. Sulf. means Sodium Sulfate, or does it? It couldn't mean sulfite could it? Or sulfide? How is one to know that L.C.D. is Coal Tar Solution? Lig. Carbon. Deterg. is a better clue, but why not avoid any possible error or misunderstanding and say Coal Tar Solution? Always remember that the formulary is being used by physicians and nurses. Some of these people have had as little as thirty hours of

lecture work on drugs and pharmacology. Can we expect them to know what took us three and four years of study and years of experience to learn?

The use of Latin is a holdover from by-gone days. The official books have discarded Latin almost completely, yet, it still appears frequently in hospital formularies. What's worse—it is almost always interspersed among English terms. "Aq." or "Aqua" just seems to be the natural thing to use in a formula. Why? What's wrong with the use of the English language? Is "Aq.Dest." or "Syr. Cerasi" supposed to be more elegant than their English equivalents?

While we're modernizing and omitting Latin, why not exclude terms like aa, q.s., ad., and other such Latin abbreviations? Use the English terms "of each," "a sufficient quantity," "to make," and so forth.

One disreputable practice that few hospitals participate in is the use of proprietary names for formulas which do not represent the proprietary formula in question. "Auralgan" was the term applied to almost all of the antipyrine-benzocaine-glycerin formulas in twenty-two of the hospital formularies reviewed. Only fifteen formularies used what seems to be a formula comparable to that of Auralgan, yet more than those fifteen named the product "Auralgan." One hospital labeled the following formula "Auralgan":

Antipyrine	1.2 Gm.
Glycerin	15.0 ml.

This contains no ethyl aminobenzoate as does the proprietary product. Still other formulas utilized propylene glycol rather than glycerin or used the ingredients in amounts differing greatly from the proprietary product's formula. Would it not be better to name the hospital made product "Antipyrine Glycerite," or "Antipyrine Ear Drops" rather than Auralgan? In fact, any proprietary medication which is manufactured in the hospital pharmacy should be called some descriptive name and, if necessary, the term ————————-type (i.e., Auralgan-type) given in parentheses.

Metric System

The metric system is being taught in the majority of the medical and nursing schools. The *Pharmacopeia* and the *National Formulary* both give prominence to the metric system. It might, therefore, be wise for the hospital formulary (which is supposed to be a teaching tool) to indicate dosage or strength available in the metric system. If the physicians and nurses feel that the apothecaries system should be maintained, make it subordinate to the metric system. Above all, indicate the apothecaries equivalent in the same manner each time and do not mix metric, apothecaries and household measurements.

There are scores and scores of incidents of mixing the apothecaries and metric systems. Below are listed some of the types of inconsistencies actually noted in various hospital formularies:
Mixing metric and apothecaries units:

"Camphor	0.1
Calamine	2.0
Olive Oil	1 oz."

or

"Each 30 cc. contains:
90 gr. Kaolin
2 gr. Pectin"

Mixing metric and household measures:

"Kaolin	3 Gm.
Pectin	.60 mg.
in each tablespoon"	

The last formula mixes Gm. with mg., which might be confusing. You might also note that the word "tablespoon" is used rather than the correct term "Tablespoonful."

Following are three formulas taken from one page of the same formulary:

Ammonium Chloride	0.5 Gm.
GU Mixture	
Tr. Hyoscyamus	4.0 dr.
Pot. Citrate	4.0 dr.
aq. Menth. Pip. qs.	4.0 oz.
dose 4.0 cc.	
Mandelic Acid - Ammonium Chloride	
Mandelic Acid	0.3 gm.
Ammonium Chloride	0.23 gm.

These three formulas include a variety of minor inconsistencies:

1. The pharmaceutical abbreviation of gram is usually considered to be *Gm.* (Capital "G")
2. The official title is "Hyoscyamus Tincture," not "Tr. Hyoscyamus"
3. All titles are capitalized except "aq."
4. The formula for "GU Mixture" is apothecaries throughout and the dose is given in the metric system
5. In direct contrast, the next formula is in the metric system.

Another hospital formulary had two formulas called "1-2-3 Enema." They were:

a.	b.
1 oz. magnesium sulfate	1 oz. mineral oil
2 oz. glycerin	2 oz. glycerin
3 oz. water	3 drops turpentine
3 drops turpentine	q.s. water

It would seem that if the substance is to be called "1-2-3," then the ingredients should be in a ratio of 1-2-3 in the same units.

The last series of inconsistencies is three different methods of indicating apothecaries equival-

ents. This example was taken from one formulary, from two pages side by side.

Calcium Carbonate	0.64 Gm.	10 gr.
Sodium Bicarbonate	2.00 Gm.	30 gr.
Bismuth Subcarbonate	0.6 Gm.	(gr. 10)
Kaolin	0.6 Gm.	(gr. 10)
Water, q.s.	4.0 cc.	(oz. 1)
Kaolin	0.8 Gm.	- gr. 12
Pectin	0.030 Gm.	- gr. ½

Titles

Some effort to standardize titles should be undertaken. It was suggested earlier in this paper that the letters "U.S.P." "N.F.." and "N.N.R." or initials peculiar to that hospital be included appropriately after the title of a preparation.

The titles should be descriptive and, if possible, include the name of the active ingredient. The title should avoid therapeutic suggestion or confusion with other names. "Shake Lotion" or "White Shake Lotion" is hardly descriptive at all, especially if the formulary contains "White Shake Lotion No. 1" and "White Shake Lotion No. 2." Each title should refer to one and only one formula; each formula should have a different and distinctive title. These shake lotions should be termed "Boro-Zinc Lotion" or "Compound Zinc Oxide Lotion" to avoid confusion and possible errors.

Formulas

The formulas, as given in the formulary, should be complete. Then, if the physician wishes to prescribe the medication for one of his private patients, or if the clinic patient would like to have his prescription filled by his local pharmacist, the formula is readily available and no friction will arise. A formula with "Color Red" leaves much to be desired. Possibly the hospital pharmacy has a standard master formula and reproduces the same shade of red each time the preparation is made, but what happens if the patient takes the prescription to a retail pharmacist? If the retail pharmacist attempts to fill the prescripion, the chances are that the prescription will be a different shade of red from that which the patient may have received from the hospital previously. "In an aromatic vehicle" is another poor way of stating a formula. If terms such as "Aromatic Vehicle" or "Elegans" are used, they should be specifically described elsewhere in the formulary.

Standardization of Formulas

A number of formulas were observed to appear frequently in the sixty formularies reviewed. A standardization of these formulas would be a progressive step toward simplifying the prescribing habits of a physician in various hospitals. As it is now, if a physician, who is on the staff of several hospitals, wants to use an aluminum paste as a protective, he must either know what formulas are available in the different hospitals or else must memorize a formula which he finds to be satisfactory. On prescribing this formula in the hospital he may incur the wrath of the hospital pharmacist who already has a stock of aluminum paste prepared, the formula of which is different from that which the physician has prescribed. For this reason, the author has reviewed the formulas which appeared most frequently in various formularies and has compiled composite formulas based on the number of times an ingredient was repeated and its concentration. The list of hospital formularies reviewed concludes this paper.

It is evident that identical preparations with different names and different formulas with identical names could cause quite a bit of confusion to the physician who services several hospitals. With this in mind, these formulas have been presented to the Chairman of the National Formulary Committee, who, with his committee, will determine whether or not their usage is such that the formulas should be recommended for inclusion in the *National Formulary*.

A word concerning vitamin preparations should be mentioned first. Almost all formularies contain numerous vitamin preparations. It would be impossible to record all the formulas and attempt to systematize them. Most all hospitals stock a prophylactic multiple vitamin (such as Hexavitamin Capsules U.S.P.), a therapeutic vitamin formula, a parenteral vitamin formula and frequently many other various multiple mixtures of vitamins. Quite often these mixtures have no specific purpose, and are practically duplicates of each other. They usually merely present the name and formula of the many proprietary preparations currently cluttering the market. It would be well if the hospital pharmacist attempted to follow the recommendations of the National Research Council.[2]

Bladder Mixture

A formula called "Bladder Mixture" appeared in about 56 percent of the formularies reviewed. This preparation is an antispasmodic, diuretic, and urinary alkalinizer useful in cystitis and other conditions associated with an irritated bladder. It is usually given in a 4 ml. dose. Frequently bromides, belladonna, phenobarbital or some vehicle is added to the basic formula as given below.

(2) Therapeutic Nutrition, Publication 234, National Academy of Sciences, National Research Council, 1952.

A stabilizer may be added to prevent precipitation of some of the ingredients in the hyoscyamus tincture. Sodium acetate or citrate is preferred in some hospitals; however, the formula below utilizes potassium citrate because it appeared in the majority of the formulas. The use of iso-alcoholic elixir (three volumes of high-alcoholic elixir and one volume of low-alcoholic elixir) may be a very desirable feature in place of the compound cardamon tincture.

Compound Hyoscyamus-Citrate Mixture

Bladder Mixture
GU Mixture
Hyoscyamus-Sedative Mixture

Hyoscyamus Tincture	16.7 ml.
Potassium Citrate	16.7 Gm.
Compound Cardamon Tincture, to make	100.0 ml.

Antidiarrhea Mixture

Over fifty percent of the formularies reviewed contained a diarrhea (or antidiarrhea) mixture containing kaolin and pectin. Actually, many formularies attempted to copy the formula of Kaopectate (Upjohn Co.). This preparation is used as an adsorbent and demulcent in a 15 to 30 ml. dose every three hours (or after every bowel movement). The following formula is typical of those found in hospital formularies:

Compound Kaolin-Pectin Mixture

Diarrhea Mixture
Kaolin-Pectin Mixture
Kaolin with Pectin

Kaolin	19.5 Gm.
Pectin	0.5 Gm.
Vanilla Tincture	2.5 ml.
Glycerin	3.0 ml.
Methylparaben	0.013 Gm.
Propylparaben	0.007 Gm.
Alcohol	0.75 ml.
Distilled Water, to make	100.0 ml.

An antidiarrhea mixture employing an insoluble bismuth salt and camphorated opium tincture was a popular preparation. Formulas, similar to the one given below, were included in about 30 percent of the formularies reviewed.

Compound Bismuth and Opium Mixture

Bismuth-Paregoric Antidiarrhea Mixture

Bismuth Subcarbonate	10.0 Gm.
Camphorated Opium Tincture	50.0 ml.
Chalk Mixture, to make	100.0 ml.

B and O Suppositories

If Belladonna and Opium Suppositories are admitted to the *N.F.X.*, then the next formula will have become standardized. In the formularies reviewed, the formulas varied considerably, but, based on the predominent formula in those twenty-three formularies, the following would be appropriate:

Belladonna and Opium Suppositories

Opium and Belladonna Suppositories

Powdered Opium	0.060 Gm.
Belladonna Extract	0.015 Gm.
Theobroma Oil, to make (one suppository)	2.0 Gm.

Ear Drops

Auralgan (Doho Chemical Co.) is a formula copied by many hospitals. Minor changes appeared, but essentially, the formula below was the most predominent. This is an antiphlogistic, analgesic and bacteriostatic agent used in the treatment of acute otitis media.

Antipyrine Glycerite

Auralgan-type
Antipyrine Ear Drops
Benzocaine Ear Drops

Antipyrine	6.0 Gm.
Ethyl Aminobenzoate	1.5 Gm.
Chlorobutanol	1.3 Gm.
Glycerin, Anhydrous, to make	100.0 ml.

Phenol in glycerin ear drops were listed in 36 percent of the formularies reviewed. This preparation is an antiseptic and analgesic useful in otalgia and early otitis media.

Phenol Glycerite Phenol Ear Drops

Phenol	5.0 Gm.
Glycerin, Anhydrous, to make	100.0 ml.

Eleven of the formularies reviewed contained salicylic acid in alcohol. This is an ear drop preparation useful in the treatment of otomycosis. Some of the formulas utilized 70 percent alcohol rather than 95 percent alcohol as indicated below.

Salicylic Acid in Alcohol

Salicylic Acid	3.0 Gm.
Alcohol, to make	100.0 ml.

The formulas of Otomide (White) and Otosmosan (Doho) were closely copied by several of the hospital formularies reviewed. Both preparations are used in the treatment of common infections of the middle ear. Ethyl aminobenzoate was frequently added in the hospital formulas. This ingredient was supposed to enhance the local analgesic effect on the ear.

Sulfanilamide - Urea Glycerite Otomide-type Sulfanilamide Ear Drops

Urea	10.0 Gm.
Sulfanilamide	5.0 Gm.
Chlorobutanol	3.0 Gm.
Glycerin, Anhydrous, to make	100.0 ml.

Sulfathiazole - Urea Glycerite Otosmosan-type Sulfathiazole Ear Drops

Urea	10.82 Gm.
Sulfathiazole	9.68 Gm.
Glycerin, Anhydrous, to make	100.00 ml.

Boric acid in alcohol is a common preparation used in the treatment of chronic otitis media and chronic external otitis. Formulas seen in 39 percent of the formularies varied greatly both in the amount of boric acid present and in the concentration of alcohol used.

Boric Acid in Alcohol

Boric Acid	2.4 Gm.
Alcohol, 70 %, to make	100.0 ml.

Suby's Solution

Suby's solution appeared to be the most consistent formula found in the formularies. Fifteen formularies (out of twenty-one) contained the same formula for Suby's Solution "G." A Suby's Solution "M" is also sometimes used. This solution "M" differs only in that it contains 0.88 percent sodium carbonate and has a *p*H of 4.5, whereas Suby's "G" has a *p*H of 4.0. Suby's "G" is used as a kidney, pelvic or bladder irrigant to dissolve urinary calculi composed of calcium or magnesium phosphates or carbonates, or in the treatment of urinary tract infections accompanied by a persistently alkaline urine. Following is the formula for Suby's "G" Solution:

Buffered Citrate Solution

Magnesium and Citrate Solution
Suby's Solution G
Albright's Solution G

Citric Acid, Anhydrous	3.23 Gm.
Magnesium Oxide, Anhydrous	0.38 Gm.
Sodium Carbonate, Anhydrous	0.44 Gm.
Benzalkonium Chloride Solution 10 %	0.075 ml.
Distilled Water, to make	100.0 ml.

Ointments and Pastes

Tannic acid ointment is official; however, many hospitals use other tannic acid preparations. Seventeen formularies contained tannic acid in either a solution or in suppositories. The solution usually contained 5 to 10 percent tannic acid and the suppositories contained 0.25 Gm. of tannic acid in each.

Whitfield's ointment of salicylic and benzoic acids is popular, but many hospitals use also an ointment of salicylic acid and sulfur. This is used as a parasiticide and keratoplastic agent, especially in seborrheic dermatitis. At least 38 percent of the hospitals use a formula such as that given below.

Salicylic Acid and Sulfur Ointment
Sulfur and Salicylic Acid Ointment

Precipitated Sulfur	3.0 Gm.
Salicylic Acid	2.0 Gm.
Hydrous Wool Fat	10.0 Gm.
Petrolatum, to make	100.0 Gm.

Approximately 30 percent of the formularies reviewed included a "1-2-3 Ointment." This is an astringent and soothing preparation to which 1 percent menthol or phenol may be added if an antipruritic action is desired.

Aluminum Acetate Paste Burow's Solution Paste
1-2-3 Paste

Aluminum Acetate Solution	17.0 ml.
Hydrous Wool Fat	33.0 Gm.
Zinc Oxide Paste, to make	100.0 Gm.

Aluminum paste is fairly common in hospitals but there is little uniformity in the different formulas. About 43 percent of the formularies included such a formula to be used as a protective dressing when applied to the perimeter of a colostomy or similar surgical orifice, intestinal fistula, or around draining superficial ulcers.

Aluminum Paste

Aluminum Powder	25.0 Gm.
Liquid Petrolatum, a sufficient quantity necessary for levigation	
Zinc Oxide Ointment, to make	100.0 Gm.

Although the *United States Pharmacopeia* includes Coal Tar Ointment, 28 percent of the formularies reviewed contained coal tar ointments which did not meet the official specifications. The hospital formulary preparations usually contained less zinc oxide and more starch than the official preparation. It might be well for those officials responsible for the inclusion of formulas in the *U.S.P.* and *N.F.* to consider whether the percentage strengths of ingredients, as given below, might merit inclusion in the official books.

Coal Tar	5 %
Zinc Oxide	5 - 10 %
Starch	25 - 50 %

What was called "Buttocks Protective Ointment" or "Diaper Rash Ointment" appeared in eleven formularies. This formula included mainly peruvian balsam, castor oil and zinc oxide. Its mildly stimulant, antiseptic and protective properties make this ointment useful for the treatment of indolent ulcers, diaper rashes, and abraded areas of the skin.

Compound Peruvian Balsam Ointment
Buttocks Protective Ointment

Peruvian Balsam	25.0 Gm.
Castor Oil	25.0 ml.
Zinc Oxide Ointment, to make	100.0 Gm.

An ointment which seems to be favored by dermatologists is ammoniated mercury and salicylic acid ointment. It is used as a parasiticide, bactericide, keratolytic and irritant in eczema and various other skin conditions. This preparation was reviewed as an after-thought. An extensive search through the formularies would probably reveal that more than 25 percent of the formularies include such a preparation.

Ammoniated Mercury and Salicylic Acid Ointment

Ammoniated Mercury	5.0 Gm.
Salicylic Acid	5.0 Gm.
White Petrolatum, to make	100.0 Gm.

About 22 percent of the formularies contained either an ointment or a lotion used for the treatment of acne. The principal ingredients were sulfur and resorcinol. Some of the other ingredients included were: zinc oxide, talc, salicylic acid, camphor, tragacanth, starch and cuticolor ingredients such as Neutracolor, neocalamine, etc.

Sulfur - Resorcinol Lotion Formula

Sulfur	5.0 Gm.
Resorcinol	2.0 Gm.
Glycerin	30.0 ml.
Alcohol	30.0 ml.
Distilled Water, to make	100.0 ml.

Sulfur - Resorcinol Ointment Formula

Sulfur	8.0 Gm.
Resorcinol	2.0 Gm.
Neutracolor, if desired, a sufficient quantity	
Hydrophilic Ointment, to make	100.0 Gm.

Scalp Lotions

Various scalp lotions are popular but these are difficult to classify or formulate. They are recommended for use in alopecia or as a "seborrhea tonic." The following three formulas are based on whether or not they contain mercury bichloride, coal tar or resorcinol. Rather than give a definite formula, the following information is presented:

Mercury Bichloride Scalp Lotion—

found in nineteen formularies

	No. times appeared for dry hair	for oily hair
Mercury Bichloride (0.007-2%)	15	13
Resorcinol (1-5%)	8	9
Salicylic Acid (1-3.3%)	6	7
Chloral Hydrate (1-5%)	7	3
Castor Oil (0.5-10%)	15	—
Glycerin (2-50%)	—	7
Cantharides	2	3
Alcohol	15	13

Resorcinol Scalp Lotion—

found in eight formularies

	No. of times appeared
Resorcinol (5%)	8
Salicylic Acid (2%)	7
Alcohol	8
Glycerin	2
Castor Oil	3

Coal Tar Scalp Lotion—

found in ten formularies

	No. of times appeared
Coal Tar Solution (5%)	10
Salicylic Acid (2%)	9
Resorcinol	2
Camphor Water	6
Alcohol (50%)	10
Castor Oil	2

Skin Lotions

"Shake Lotion" and "Basic Shake Lotion" were common titles for preparations appearing in various formularies. Quite often these were entitled "Drying Lotion" or "Wetting Lotion" according to their characteristics. This author has divided the lotions into such categories.

A wetting lotion-type formula is difficult to determine from the data obtained because the formulas were very diversified. They may be separated into those with an emulsion-type base and those with an aqueous or alkaline base. They differed from the drying lotions in that they contained no alcohol. A list of the ingredients found in the twenty-two "wetting lotion" formulas is submitted.

Zinc Oxide "Wetting" Lotion

	No. of times appeared
Zinc Oxide	22
Talc	11
Glycerin	13
Calcium Hydroxide Solution	13
Olive Oil	5
Starch	5
Bentonite	5

The "drying" lotion formulas were simpler and presented in a more uniform manner. This is a protective lotion that facilitates the drying of "weeping" skin disorders.

Zinc Oxide and Talc Lotion	Drying Lotion
Zinc Oxide	15.0 Gm.
Talc	15.0 Gm.
Glycerin	10.0 ml.
Alcohol	30.0 ml.
Distilled Water, to make	100.0 ml.

Douche Powder

"ABC Douche Powder" was seen in about 22 percent of the formularies reviewed. The formulas conformed to the following:

Compound Alum Powder — ABC Douche Powder / PMC Douche Powder

Alum	17.5 Gm.
Phenol	2.5 Gm.
Peppermint Oil	1.0 ml.
Boric Acid Powder, to make	100.0 Gm.

Dusting Powders

Dusting powders are popular, not only on the lay market, but enough so in hospitals that compounded formulas frequently appear in the formularies. A composite formula of those ingredients and the strengths in which they appear might be:

Compound Boric Acid and Talc Dusting Powder

Boric Acid Powder	10.0 Gm.
Starch	30.0 Gm.
Talc, to make	100.0 Gm.

Miscellaneous Preparations

The following preparations were noted to be repeated in the formularies reviewed, but not often enough to be considered in detail. None of these formulas appeared in more than 20 percent of the formularies.

Chlorophenothane in Talc Dusting Powder — D.D.T. in Talc

Chlorophenothane	10.0 Gm.
Talc, to make	100.0 Gm.

Asthmatic Mixture Capsules

Ephedrine Sulfate	0.015 Gm.
Aminophylline	0.1 Gm.
Phenobarbital	0.015 Gm.

Methyl Salicylate Ointment

Methyl Salicylate	10.0 ml.
Menthol	2.0 Gm.
White Petrolatum, to make	100.0 Gm.

Iodine in Boric Acid Powder — Sulzberger Powder

Iodine	1.0 Gm.
Boric Acid Powder, to make	100.0 Gm.

Bismuth Tribromphenate Ointment — Xeroform Ointment

Bismuth Tribromphenate	3.0 Gm.
Wool Fat	10.0 Gm.
Petrolatum, to make	100.0 Gm.

Sodium Bicarbonate Glycerite — Softening Drops

Sodium Bicarbonate	5.0 Gm.
Glycerin	50.0 ml.
Distilled Water, to make	100.0 ml.

It must be rather obvious that the chlorophenothane in talc is used as a pediculicide and that the methyl salicylate preparation would be a rubefacient. The asthmatic mixture suggests the use of the capsule. The title may be undesirable and possibly should be called Compound Ephedrine Capsules. Iodine in boric acid is useful for the treatment of chronic suppurating otitis media. Bismuth tribromphenate is claimed to be a nontoxic and nonirritating antiseptic dressing for plastic surgery or for the treatment of ulcus cruris, impetigo, and eczemas. Sodium bicarbonate in glycerin is supposed to soften wax in the ears and facilitate the removal of the wax.

Summary

Fifty-eight formularies have been reviewed and a list of the formulas which reappeared regularly was recorded. A composite formula for each type of preparation recorded has been presented in this paper. Acceptance of these composite formulas by the medical staffs of the various hospitals which utilize a similar formula would aid greatly in the standardization of this series of preparations. Such a move would help eliminate situations involving misunderstandings when two formulas have the same name, or the same formula has two different names.

Recommendations

In essence, the following recommendations for the standardization of hospital formularies have been presented in this paper and are hereby again summarized.

1. The formulary should include a title page which states the name of the hospital which the formulary represents, the city and state wherein the hospital is located, and the date of publication.

2. A general information section mentioning policies peculiar to that hospital and summarizing the important points of the various laws governing pharmacy and prescription writing is invaluable to the busy physician. Metric-apothecaries equivalents, milliequivalents, typical prescriptions, and explanation of the contents of the formulary should be included in this section.

3. The drugs and monographs included in the formulary should be given their official *U.S.P.* or *N.F.* name, or the *N.N.R.* generic name. Titles of formulas should be descriptive or should include the important ingredient. They should signify only one preparation. The title should be followed with *"U.S.P.," "N.F.," "N.N.R."* or the initials of the hospital where the formula is used. Synonyms, abbreviations or Latin should not be used or else should be included in parentheses secondary to the official term. Quantities should be entirely in the

metric system. Apothecaries equivalents, if designated at all, should be designated in a uniform fashion in all formulas.

4. Finally, an index should be included in all formularies, no matter whether the drugs are listed alphabetically or therapeutically. The index should be cross-indexed and should be extensive enough that if one knows the active ingredients of the formula, he should be able to find that formula no matter what the title of the formula may be. Synonyms should be included and should refer to the page where the drug is listed under its official title. It is extremely important for this reason to include the synonym along with the proper title of the drug.

5. Before one publishes a formulary he should review several different formularies, note their desirable and undesirable features, and devlop his formulary keeping simplicity and ease of use as important objectives. Keep in mind the inconsistencies so common in other works and make the formulary serviceable to those whom you expect to use it. Finally, pattern the formulary after the official books insofar as this can be done.

The author wishes to express his deep appreciation to Mr. Herbert L. Flack, Director, Pharmacy Service, Jefferson Hospital, Philadelphia, Pa., and Miss Gloria Niemeyer, Secretary, American Society of Hospital Pharmacists, 2215 Constitution Ave., N.W., Washington, D.C. for their assistance in securing the formularies reviewed. Many thanks, too, to Dean Linwoood F. Tice, Philadelphia College of Pharmacy and Science, Philadelphia, Pa. for his valuable constructive criticisms.

FORMULARIES REVIEWED, PARTIAL LIST

1. *Formulary, Delaware and Memorial Hospitals,* Wilmington, Del., 1951.
2. *Formulary of the New Haven Unit and New Haven Dispensary of the Grace-New Haven Community Hospital,* New Haven, Conn., 1946.
3. *Formulary, Hospital of the University of Pennsylvania,* Philadelphia, Pa., 1953.
4. *Formulary, Hospital of the Protestant Episcopal Church,* Philadelphia, Pa.
5. *Jackson Memorial Hospital Formulary,* Miami, Fla.
6. *Valley Forge Army Hospital Formulary,* Valley Forge, Pa.
7. *Bellevue Hospital Formulary,* New York, N. Y., 1948.
8. *Hospital Formulary, University of California,* Berkeley, Calif., 1952.
9. *Formulary of the Nebraska State Medical Association,* Lincoln, Neb., 1953.
10. *Formulary of the New York University Clinic and Medical Group.*
11. *Drug Formulary, Station Hospital, Olmsted Air Force Base,* Middletown, Pa.
12. *Index, Hospital Pharmacy, University of Illinois.*
13. *Greenwich Hospital Association Pharmacy Bulletin,* Greenwich, Conn., 1947.
14. *Albany Hospital Drug Formulary,* Albany, N.Y.
15. *Evangelical Deaconess Hospital Formulary,* Detroit, Mich., 1949.
16. *Formulary, National Naval Medical Center,* Bethesda, Md., 1949.
17. *Formulary of the Moses H. Cone Memorial Hospital,* Greensboro, N.C., 1953.
18. *Children's Hospital Formulary, University of Florida,* Gainesville, Fla., 1951.
19. *Johns Hopkins Hospital Formulary,* Baltimore, Md., 1942.
20. *Chester Hospital Formulary,* Chester, Pa.
21. *Baltimore City Hospitals Formulary,* Baltimore, Md., 1950.
22. *Walter Reed Army Hospital Formulary and Addendum,* Wash., D.C., 1951.
23. *Handbook and Formulary of the University Hospitals,* State University of Iowa, 1946.
24. *Formulary, University Hospital,* Ann Arbor, Mich., 1947.
25. *Formulary, University Hospitals,* Cleveland, Ohio, 1945.
26. *St. Luke's Hospital Formulary,* Morningside Heights, N.Y., 1943.
27. *Formulary of the Massachusetts General Hospital and Eye and Ear Infirmary,* 1951.
28. *Indiana University Medical Center Hospital Formulary,* Indianapolis, Indiana, 1947.
29. *New Jersey Formulary,* Sixth Edition, 1951.
30. *New Jersey Chiropodist Formulary,* First Edition, 1951.
31. *University of Colorado Hospitals Drug Formulary,* Denver, 1951.
32. *Formulary of Jefferson Medical College Hospital,* Phila., Pa., 1953.
33. *Public Health Service Hospital Formulary and Supplement.*
34. *Baltimore Supplement to U.S.P.H.S. Hospitals Formulary.*
35. *New York Hospital Formulary and Therapeutic Guide,* 1951.
36. *Beth Israel Hospital Formulary,* N.Y.C., 1950.
37. *Springfield City Hospital Formulary,* Springfield, Ohio.
38. *St. Luke's Hospital Formulary,* Jacksonville, Fla., 1950.
39. *Lynn Hospital Formulary,* Lynn, Mass., 1949.
40. *Peter Bent Brigham Hospital Formulary,* Boston, Mass.
41. *Drug Formulary, U.S. Marine Hospital,* Seattle, Wash., 1949.
42. *Missouri Pacific Hospital Association Formulary,* St. Louis, 1949.
43. *St. Elizabeth's Hospital Formulary,* Belleville, Ill., 1951.
44. *Formulary, Chanute Air Force Base,* Ill., 1953.
45. *Duke Hospital Formulary,* Durham N. C., 1949.
46. *Manual of Procedures of Philadelphia General Hospital,* 1950.
47. *Jewish Hospital Formulary,* Phila., Pa.
48. *U. S. Marine Hospital Formulary,* Staten Island, N.Y., 1950.
49. *Children's Hospital Formulary,* Detroit, Mich., 1948.
50. *Monmouth Memorial Hospital Formulary,* Long Branch, N.J., 1947.
51. *Formulas for Manufacturing in Hospital Pharmacy,* Allen Beck, 1950.
52. *Georgia Department of Public Health, Suggested Hospital Formulary,* 1952.
53. *The Veterans Administration Formulary,* 1951.
54. *Abington Memorial Hospital Formulary,* Abington, Pa., 1953.
55. *Pharmacopeia of Charing Cross Hospital,* England, 1935.
56. *Pharmacopoeia of German Hospital,* Philadelphia, 1902.
57. *Manual of Dental Preparations,* Duquesne University, School of Pharmacy.
58. *Wills Eye Hospital Formulary,* Philadelphia, Pa.

JUSTIN L. POWERS

Hospital Formularies and the National Formulary

by JUSTIN L. POWERS

THE NATIONAL FORMULARY and a hospital formulary have at least one characteristic in common. Both are misnamed because neither is primarily a book of formulas for dosage forms of drugs. The *National Formulary* and all hospital formularies do, however, include a limited number of working formulas for the fabrication of pharmaceutical preparations.

The first three editions of the *National Formulary* were truly books of formulas for widely used dosage forms such as elixirs, emulsions, fluidextracts, tinctures, solutions, syrups, and many others. When the *National Formulary* acquired legal status through the terms of the 1906 Federal Food and Drug Law, it became necessary for it to include, in addition to formulas, standards for basic drugs not covered by the *United States Pharmacopeia*. Since 1906 changes with which we are all familiar have resulted in the discontinuance of many of the early formulas.

JUSTIN L. POWERS is Chairman of the Committee on National Formulary, American Pharmaceutical Association, Washington, D.C. Presented to the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, Boston meeting, August 24, 1954.

Specifications and Working Formulas

During the past 20 years the trend has been toward including fewer working formulas and a larger number of specifications for basic drugs and simple dosage forms such as capsules, tablets, and injections in the *National Formulary*. It may be interesting to recall that the first official specifications for injections and tablets, developed through the cooperation of the Food and Drug Administration and the Contact Committee of the A.D.M.A. and the A.P.M.A., appeared in the *National Formulary*. The basic principles adopted more than twenty years ago for standards for these dosage forms are still followed by the *N.F.* and by the *U.S.P.* These specifications, unlike those for elixirs and syrups, for example, include neither definite formulas nor directions for manufacture. The reason is apparent when we consider the number of different, but quite satisfactory, formulations and processes that may be used in the manufacture of tablets, and the various acceptable methods of stabilizing, preserving, and sterilizing

injectible solutions. The official specifications for these dosage forms, because of their inherent differences from other types of preparations, cannot reasonably include definite formulas and working directions for preparing them.

There are many who would like to see the *National Formulary* return, as far as possible, to its original function of supplying larger numbers of formulas for dosage forms in addition to standards for capsules, tablets, and injections and for which the problems involved are not the same.

Need For More Uniformity

In formulating plans for the revision of *N.F. IX*, it was thought that we might possibly select from hospital formularies a limited number of dosage forms of identical composition for *N.F. X*. When we attempted to put this plan into action, we found, as Mr. Hartshorn has reported, little similarity in the nomenclature and quantitative, or even qualitative, composition of comparable formulas appearing in different hospital formularies.

I was much interested in the results of Mr. Hartshorn's recent survey of hospital formularies, the compilation of formulas widely used in hospitals, and his emphasis on the need for greater uniformity of nomenclature and composition for formulas of preparations appearing in hospital formularies. As he emphasized, such uniformity would be highly advantageous to the pharmacists and physicians practicing in hospitals. It might also offer other advantages. For example, physicians become accustomed to prescribing certain dosage forms by the names appearing in the hospital formulary in use where they serve their internships. Upon entering private practice, perhaps in another part of the country remote from the hospital, they learn that many of the products to which they have become accustomed are unknown to the pharmacists in the new localities. If a greater degree of uniformity in nomenclature and qualitative and quantitative composition existed in formulas for dosage forms in the several hospital formularies, this situation would be somewhat relieved. It would be relieved to a greater extent, however, if such preparations were included in one of the official compendia, both of which are always available to pharmacists.

Possibilities For Cooperation

It would be quite presumptuous for me to offer gratuitous advice to the members of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, but I would like to suggest a possibility for cooperation between the SOCIETY and those responsible for the *National Formulary*. I am not prepared to offer, except in very general terms, a procedure for such cooperation that might meet with the approval of the members of this SOCIETY and the Committee on National Formulary.

During the course of the revision of *N.F. IX* in preparation for the publication of *N.F. X*, several advisory committees were established which have made definite recommendations concerning the admission of basic drugs and dosage forms to the *National Formulary*. Among these are advisory committees on dental, veterinary, and chiropody-podiatry preparations. It seems as if, from the standpoint of both the *National Formulary* and pharmacists providing service to hospitals, and those we both attempt to serve, that an advisory committee representing hospital pharmacy and composed of those who have been active in the development of hospital formularies could accomplish much toward the promotion of interests we have in common. As I visualize it, such an advisory committee might attempt, within the framework of the SOCIETY, to agree upon a basic list of unofficial dosage forms of drugs, that seem to be widely used in a majority of hospitals. Mr. Hartshorn has compiled such a basic list of preparations which could be revised by additions and deletions from time to time. The next step would be to reach an agreement on uniformity of nomenclature and composition of such formulas. After this task is completed, and I realize it is no easy one, recommendations to the Committee on National Formulary to admit and devise suitable specifications for certain selected preparations could appropriately be made.

Advantages

It is not my thought that the *National Formulary* would ever replace hospital formularies either in whole or in part, but it could serve to promote uniformity and to furnish information to pharmacists practicing in hospitals or in retail pharmacies concerning many preparations that physicians might like to prescribe by a nationally recognized nonproprietary name instead of being forced either to spell out the ingredients in a prescription or to accept one under another name.

I can assure you that the Committee on National Formulary would welcome cooperation of the type I have outlined in a very general way. If such a plan, from the standpoint of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, appears to have merit and to offer possibilities, I can assure you of my complete cooperation in doing everything possible to promote a closer liaison between the *National Formulary* and the members of your SOCIETY.

therapeutic TRENDS

edited by LEO F. GODLEY

Colchicoside In Joint Diseases

Colchicoside is a "derivative of *Colchicum autumnale.*" It is considerably less toxic than colchicine; hence, a dose of 50 times as great may be employed. Pharmacologically, the two substances act similarly.

Rizzente, in Italy, used colchicoside in a series of 15 patients with chronic joint disease. His report is summarized in *J. Am. Med. Assoc. 156*:798 (Oct.) 1954. Five to 10 mg. of the drug was administered intravenously for courses of from 5 to 15 days with an interval of 50 days in between. Pain was relieved and mobility was restored in 11 patients. There were also improvements in general condition and well being. Some blood picture changes were noted as a result of this therapy and a slight rise in blood pressure occurred in nine patients. This investigator is of the opinion that colchicoside warrants further clinical trial in chronic joint diseases.

Azaserine In Neoplastic Diseases

Azaserine is an analogue of serine. It inhibits tumor growth in mice. According to the reports of its therapeutic trial as published in *Cancer 7*:801 (July) 1954, the results were not particularly encouraging. It is felt, however, that the profound effect which this agent has on a variety of biological systems will make it a likely source for further clinical study in this connection.

Morinda Citrifolia Extract In Hypertension

Morinda citrifolia is a plant that is indigenous to southern Viet-Nam. The root of this plant has been used empirically by the natives for hypertension, for an emetic, and as an antirheumatic. The results of a study by Dang-Van-Ho on five hypertensive patients are reported in *J. Am. Med. Assoc. 156*:922 (Oct. 30) 1954. Good results were obtained. The author points out that the extract must be used in conjunction with "other therapeutic agents when there are complications of hypertension." *Morinda citrifolia* is also a good diuretic and this investigator points out that further work should be conducted on the plant substances to extend its usefulness.

Mestinon In Myasthenia Gravis

Mestinon bromide is an analogue of neostigmine bromide. Chemically it is 3-hydroxy-1-methylpyridinium bromide.

According to a report in *Neurology 4*:762 (Oct.) 1954 by Westerberg and Magee of the University of Michigan, Mestinon is one-half to one-fourth as potent as neostigmine and is one fifth as toxic. These investigators think that the site of action of these two substances is identical. They substituted Mestinon for neostigmine in 22 patients suffering from myasthenia gravis. Daily maintenance of Mestinon ranged from 90 to 900 mg. Generally, patients found that 60 mg. of Mestinon was equivalent to 30 mg. of neostigmine. Most of these patients found that Mestinon produced a quality of relief superior to neostigmine. The muscular strength afforded by Mestinon seemed to be more even and natural. It was less toxic and void of muscarinic effects. One patient had to discontinue the drug due to paresthesias, nervousness and weakness.

Mestinon for this study was supplied by Hoffmann-La Roche.

Mercurial Diuretic In Suppository Form

Daly, at Jefferson Medical College Hospital in Philadelphia, employed rectal suppositories of 0.5 Gm. mercaptomerin sodium in a cocoa butter base in the diuretic therapy of 25 edematous patients. His report was published in *Am. J. Med. Sci. 228:* 440 (Oct.) 1954.

Suppositories were administered daily or every other day for periods up to 6 months. Diuretic

response was considered adequate in 85 percent of the outpatients and 75 percent of the hospitalized group.

The mercurial suppositories were well tolerated both locally and systemically as confirmed by proctoscopic examination and subjective information. Considerable animal experimentation was conducted before trying this form of mercurial in humans.

This investigator is of the opinion that mercaptomerin suppositories may be used to maintain many cardiac patients edema free and in others they might serve as a satisfactory supplementary agent to parenteral mercurial diuretic therapy. The suppositories were furnished by Wyeth, Inc.

Marcumar A New Anticoagulant

Marcumar, 3-(1' phenyl - propyl)-4-hydroxycumarin, acts more rapidly than dicumarol but not quite as rapidly as Tromexan. The action is more prolonged than dicumarol.

Investigators at Cornell University College of Medicine reported a study of this new anticoagulant in *Circulation 10*:680 (November) 1954. Studies on animals and humans are reported.

The optimum therapeutic dose is 21 mg. the first day and 9 mg. the second day, then 3 mg. daily. Dosage requirements vary with the patient and also in the same patient from day to day. It is advised that conscientious observation and checking of blood clotting mechanism be maintained as is the case with other anticoagulants.

Marcumar was furnished by Hoffmann-La Roche.

Dimethylkynurenamine On Blood Pressure

Makino *et al* at Kumamoto University Medical School in Japan reported on the blood pressure lowering capacity of dimethylkynurenamine in *Science 120*:544 (Oct. 1) 1954. In the anesthetized rabbit, 100 mg. of this substance lowered the arterial blood pressure by 15 mm. Hg. for 0.8 to 1 minute. Larger doses had more prolonged action. These investigators are working on a series of compounds of this general nature, reports of which are forthcoming and more spectacular. This substance may well be the forerunner of a new type of therapeutic agent.

Hydrocortisone For Adhesions

Investigators in Copenhagen report in *Acta Endocrinol. 16*:149 (June) 1945 (translated in Upjohn summary No. 22360), that talcum powder produced adhesions when 250 mg. was applied to the small intestine of rabbits.

Hydrocortisone acetate in the amount of 150 to 200 mg. was injected intraperitoneally in 10 of these animals before closure. Only one of these rabbits treated with Compound F showed significant adhesions. Healing and resistance to infection, however, appeared to be retarded in the hydrocortisone group.

PAA-701 For Amebiasis

PAA-701 is diallyl-diethylaminomethyl phenol dihydrochloride. A report was published in *Gastroenterology 27*:81 (July) 1954, of 20 hospitalized patients with active amebic dysentery who were given 0.5 Gm. of this drug three times a day orally until there was an absence of amebae in stools; and ulcerations healed as determined by sigmoidoscopic examination.

Improvement occurred rapidly, acute symptoms were largely controlled after two days of treatment; and blood was usually absent from stools after four days. Anatomic lesions healed in 5 to 25 days. None of the patients being treated with PAA-701 elicited significant toxic reactions. Seven months after treatment stool examinations were still negative.

Another report on the use of PAA-701 is published in a Peruvian journal, *Medicus* (June-July) 1954. According to this study by physicians in Arequipa, Peru, eighty-five patients with acute amebic colitis were treated with PAA-701. Eighty-two were reported negative between the sixth and the fifteenth days after therapy had begun. It was noted that even in the three remaining cases, a clinical cure was obtained, and only the laboratory showed the presence of amebae.

The fact that this drug has a low order of toxicity and is relatively inexpensive, increases its potential value in mass treatment in tropical climates. Laboratory studies also indicate that PAA-701 may have prophylactic action against amebic infections since the drug tends to remain in the tissues for long periods of time.

The PAA-701, also known as Camoform, was supplied by Parke, Davis aind Company.

Angiodiactin As A Vasodilator

Angiodiactin, a vasodilator substance found in kidney, liver, and other tissues, produced profound vasodilation in the toad and rat vascular preparations. Doses are calculated in tenths and hundredths of a gamma. This report came from Argentina and was published in *Acta Physiol. Latino Am. 3*:2, 1953 (translation by Upjohn Co. No. 22,352).

Angiodiactin is different chemically and pharmacologically from other vasodilators and may serve as a beneficial tool for further study in the treatment of hypertension.

timely drugs

Acetycol Tablets

. . . containing colchicine, salicylated 0.25 mg.; aspirin 325 mg.; *p*-aminobenzoic acid 162 mg.; ascorbic acid 20 mg.; thiamine hydrochloride 5 mg.; and niacin 15 mg., are available from Warner-Chilcott Laboratories. Acetycol is indicated in the treatment of rheumatism and arthritis and one or two tablets three or four times daily are recommended.

Acylanid

. . . (acetyldigitoxin) has recently been introduced by Sandoz. It is a crystalline cardiac glycoside derived from *Digitalis lanata*. Acylanid is available in 0.1 mg. (pink) tablets and 0.2 mg. (white) tablets.

Alkets Compressed Tablets

. . . a product of The Upjohn Company, are designed primarily to be used with Pamine products in the treatment of peptic ulcer. The tablets, containing calcium carbonate, magnesium carbonate, and magnesium oxide, are compatible with Pamine, and do not cause "rebound" gastric acidity, or systemic alkalosis. The proportion of the alkalizing agents in Alkets is designed to give a mildly laxative effect to oppose the tendency to constipation in some patients receiving Pamine, thus resulting in little change in bowel habits. Mild laxation resulted in some patients not on concomitant Pamine therapy.

Ambenyl

. . . is a new Parke, Davis preparation for relieving coughs due to colds, or which have an allergic origin. It is supplied as a liquid having a black-cherry taste. Each fluid ounce of Ambenyl contains the following ingredients: for antispasmodic and antihistaminic effects, 56 mg. Benadryl hydrochloride and 24 mg. Ambodryl hydrochloride; for thinning mucous secretions, 8 grain ammonium chloride and 8 grain potassium guaiacolsulfonate; for quieting the cough reflex, 1/6 grain dihydrocodeinone bitartrate; and menthol for soothing effect.

Amphedase with Phenobarbital Kapseals

. . . is a combination of vitamin components—nicotinamide, thiamine hydrochloride and ascorbic acid—*dextro*-amphetamine sulfate, Taka-Diastase and phenobarbital. By adding the phenobarbital, stimulation of the central nervous system which may be obtained from *d*-amphetamine is minimized. Amphedase with Phenobarbital Kapseals, a product of Parke, Davis and Co., are used to depress the appetite of obese patients.

Arfonad

. . . a new short-acting vasodepressor agent for the induction of controlled hypotension during major surgery, has been introduced by Hoffmann-La Roche Inc. Arfonad produces vasodilation through ganglionic blockade and direct dilation of arterioles. It brings about a controlled and *readily reversible* hypotensive response.

In neurosurgery, vascular surgery, fenestration operations and other procedures in which bleeding tends to obscure the operative field, Arfonad gives minute-to-minute control of blood pressure in accordance with the needs of the surgeon. It may also be used to advantage in pulmonary edema associated with systemic hypertension, and in the treatment of acute hypertensive crises.

Arfonad camphorsulfonate (triethaphan camphorsulfonate) is available in 10 ml. ampuls containing 50 mg. Arfonad per ml. It is administered by intravenous infusion. As is true of other potent hypotensive agents, Arfonad should be employed only by those thoroughly familiar with the properties of the drug and the technic of administration.

Bactine

. . . is now supplied by Miles Laboratories in a concentrated form which is eight times as strong as the standard Bactine. Widely used as a germicide, fungicide and deodorizer, Bactine contains a quaternary ammonium compound reinforced by other active components with specific functions and therefore has qualities in addition to those associated with quaternaries.

Bactine in the concentrated form is packaged in individually cartoned pint bottles with one dozen in a shipping case. When diluted with water, each pint makes one gallon of the standard preparation. A convenient sprayer bottle is currently provided at no extra cost.

Bistrium Tablets

. . . (hexamethonium chloride, Squibb) for oral administration in the treatment of high blood pressure are available from E. R. Squibb & Sons. Bistrium tablets are supplied in two potencies, 125 mg., and 250 mg., containing 92.5 mg. and 185 mg. of the hexamethonium ion respectively. Recommended in selected cases of hypertension, Bistrium is a ganglionic blocking agent that interrupts sympathetic impulses to the peripheral blood vessels, thereby lowering blood pressure. The tablets are best given in conjunction with rauwolfia (Raudixin) which tends to stabilize their action, making smaller dosage possible and minimizing untoward effects. The usual initial dose is 125 mg. four times a day, and is increased by gradual stages until the desired hypotensive effect is attained. Oral Bistrium is not usually

recommended as sole therapy because there is great variation in absorption from the intestine as well as in individual response, and adequate dosage may result in severe side effects.

Brucella Abortus Tube Antigen

. . . for the laboratory diagnosis of human brucellosis, has been placed on the market by Lederle Laboratories. The product has been prepared and tested according to the recommendations of the Committee on Brucellosis of the National Research Council. It is available in 5 and 25 ml. vials.

Chloromycetin-Hydrocortisone Ophthalmic Solution

. . . is a combination of Chloromycetin and hydrocortisone for the treatment of ocular infections. It is supplied as a dry material in 5 ml., screw-capped vials, each vial containing 12.5 mg. of Chloromycetin, 25 mg. of hydrocortisone acetate, and borate buffer equivalent to 100 mg. of boric acid with Phemerol chloride present so the suspension after preparation will contain 1: 10,000 as preservative. Chloromycetin-hydrocortisone ophthalmic solution is a product of Parke, Davis and Company.

Chloromycetin Intramuscular

. . . is a specially prepared microcrystalline form of chloramphenicol for suspension in an aqueous solution for use only by intramuscular injection. Chloromycetin, a product of Parke, Davis and Company, is used in the treatment of certain bacterial, viral, and rickettsial infections where the patient is unable to take oral medication.

Cutter Electrolyte Nos. 1, 2 and 3

. . . have been added to the Cutter products for electrolyte therapy. The solutions are designed for the physician to provide electrolytes in accordance with needs for specific therapy and are not patterned after the electrolyte composition of plasma. All three new solutions contain invert sugar 10 percent, providing 400 calories per liter and may be administered either intravenously or subcutaneously.

With Cutter Electrolyte No. 1 the lactate and sodium have an alkalizing action which is usually sufficient to correct mild acidosis.

Cutter Electrolyte No. 2 (Butler's Formula) is recommended as a routine maintenance solution for patients with essentially normal kidney function. It has the advantage that sodium and chloride are low while potassium and phosphate are high.

Cutter Electrolyte No. 3 (Cooke and Crowley's Formula) is patterned after the average composition of gastric secretions and is intended for replacement of fluid lost through gastric suction or vomiting.

C.V.P. Syrup

. . . provides in each 5 ml. teaspoonful of syrup 100 mg. of citrus bio-flavonoid compound (natural vitamin "P" complex), with 100 mg. of ascorbic acid. C.V.P. Syrup is a product of the U.S. Vitamin Corporation. It is indicated as a preventative for capillary fragility and bleeding and vascular accidents by improving capillary tone and resistance. The recommended dosage is three to six teaspoonfuls daily (300 to 600 mg. of flavonoid compound) in divided dosage.

Hydroderm

. . . is a new dermatologic preparation containing hydrocortisone, neomycin sulfate, and bacitracin in an emollient base. Hydroderm is a product of Sharp & Dohme, Division of Merck & Co., Inc.

Investigative studies have indicated that the antibiotics, neomycin and bacitracin, provide broad spectrum antibacterial action in preventing or combating bacterial infection. Bacitracin has shown activity against many of the common gram-positive pathogens and certain gram-negative cocci such as meningococcus. Neomycin widens the spectrum of antibacterial action by attacking gram-negative and gram-positive organisms as well as acid-fast bacteria.

Hydrocortone (hydrocortisone, Sharp and Dohme) has demonstrated anti-inflamatory action in suppressing edema and swelling, cellular infiltration, and itching or pruritus. Hydroderm is particularly valuable in the treatment of children when scratching may create raw, bleeding lesions which could lead to serious secondary infections.

Ilotycin Drops

. . . (erythromycin, Eli Lilly and Company) are recommended for bacterial infections, particularly in infants. The product is supplied in packages containing one bottle of dry mixture (1 Gm. Ilotycin) and a dropper calibrated at 25 mg. and 50 mg. Six ml. of water is added to make 10 ml. of suspension when dispensed. For administration to children, 5 mg. of erythromycin (1 drop from the calibrated dropper) per pound of body weight is recommended every six hours. The suspension is dropped directly on the tongue followed by a little milk or water.

Intribex Kapseals

. . . indicated in the treatment of patients having any of the many types of treatable anemia, is a product of Parke, Davis and Company. Each Kapseal has intrinsic factor concentrate containing 7.5 mcg. vitamin B_{12}, ½ U.S.P. oral unit, to which has been added 200 mg. of liver-stomach concentrate, 7.5 mcg. of crystalline vitamin B_{12}, 1 mg. folic acid, 375 mg. ferrous sulfate, and 75 mg. vitamin C.

Meratran Tablets

. . . (pipradrol hydrochloride, Wm. S. Merrell Company) are indicated in the relief of emotional and mental depression, psychogenic fatigue syndrome, and to elevate depression of mood. Meratran is contraindicated where hyperexcitability, anxiety, chorea or obsessive-compulsive states are present. It is not recommended for children. The recommended daily dosage of Meratran is three to six tablets in divided doses of one to two tablets.

Mycostatin

. . . (nystatin, Squibb) is the first broadly effective antifungal antibiotic available to the medical profession. It is derived from cultures of *Streptomyces noursei*. Mycostatin inhibits or kills all species of fungi and yeasts tested, except actinomycetes. Its greatest effect is on yeast-like fungi in the growing stage; it is less active against spores and is inactive against bacteria. Mycostatin is poorly absorbed from the digestive tract and, when taken by mouth, exerts its effect against yeasts present in the lumen of the intestine.

Mycostatin is recommended for the prevention and treatment of intestinal moniliasis. *Candida albicans* (monilia) infection is enhanced with oral antibiotics. Since it eliminates or greatly reduces the number of Candida in the stools, Mycostatin is useful to prevent or treat infection of the lower intestine and anus caused by this organism. It is indicated for patients treated with oral antibiotics, especially when such treatment is intensive or protracted. Mycostatin is also recommended for prevention of intestinal moniliasis in intestinal surgery.

No serious side effects or allergic reactions have occured with Mycostatin. Nausea and diarrhea have been reported after large doses, but gastrointestinal irritation is very rare with the usual dose. The recommended dose for treatment or prophylaxis of intestinal moniliasis is one 500,000 unit tablet three times daily. If intestinal fungi are not adequately suppressed, the dose may be doubled. Mycostatin may be given in conjunction with all commonly used oral antibiotics; it has been shown to be compatible with them.

When given concomitantly with an oral antibacterial antibiotic, Mycostatin should be continued at least as long as the antibacterial agent, and may advantageously be continued for a short period after the administration of that agent has ceased.

Myleran Tablets

. . . are recommended in the treatment of chronic myelogenous leukemia. It depresses formation of myeloid cells but has, in recommended doses, no effect on lymphoid cells or erythrocytes. Chemically, Myleran is 1,4-dimethanesulfonoxybutane. It is a potent drug and must be given by the physician to the patient. Not more than three or four days' supply should be given to the patient at one time.

Myleran is a product of Burroughs Wellcome & Co.

Phelantin Kapseals

. . . a new combination of agents for treating certain patients with epilepsy or other convulsive disorders, has been developed by Parke, Davis & Company. Each Kapseal contains 100 mg. Dilantin (diphenylhydantoin, Parke-Davis), 30 mg. phenobarbital, and 2.5 mg. desoxyephedrine hydrochloride. Both Dilantin and phenobarbital have been used alone and in combination to obtain specific effects in epilepsy. In many instances, the phenobarbital has the disadvantage of causing the patient to become drowsy due to its sedative effect. The cerebral stimulating action of desoxyephedrine tends to overcome or minimize such effects.

The recommended initial dosage for children over six years of age and adults is one Kapseal two or three times daily. The dosage can be increased gradually until the desired clinical effect is reached. For most adults, the average maintenance dosage is three or four Kapseals daily. This can be increased to six Kapseals daily, if necessary. In children, the average maintenance dosage is two or three Kapseals daily.

Rau-Tab Tablets

. . . for control of mild to moderate hypertension and management of angina are supplied by the National Drug Company, Philadelphia. Each scored tablet contains 2 mg. of the alseroxylon fraction of Rauwolfia serpentina alkaloids.

Serfin

. . . is a pure crystalline alkaloid of *Rauwolfia serpentina* having the hypotensive action and tranquilizing effect of the whole root of the plant. Used in the treatment of hypertension, Serfin is especially recommended for elderly arteriosclerotic patients in whom the use of hexamethonium and other potent hypotensive agents may not be advisable. It is also noted that the tranquilizing and sedative effects of the compound are of value in the geriatric patient to relieve the mental tensions so often prevalent.

The average initial dosage of Serfin is one tablet three or four times daily for two or three weeks. If hypotensive response is adequate after this period, reduced dosage may be tried. Some patients may continue to show adequate response to dosage reduced to two tablets daily. Serfin is supplied as scored tablets, each containing 0.25 mg. of reserpine. It is a product of Parke, Davis & Company.

Tetrazets

. . . are fruit-flavored lozenges combining three potent antibiotics for the local therapy of certain mouth and throat irritations. Tetrazets have been introduced by Sharp & Dohme, Division of Merck & Co., Inc. They combine the antibiotic activity of bacitracin, tyrothricin and neomycin in addition to the soothing effect of the analgesic, benzocaine. Tetrazets have been suggested for the following conditions: for symptomatic relief of sore throat, as an adjunct in the treatment of throat and mouth irritations due to susceptible gram-positive and gram-negative bacteria, for the alleviation of secondary irritations following tonsillectomy and other surgical procedures of the mouth and throat, as an adjunct to adequate systemic therapy in alleviating irritation in the treatment of Vincent's infection, streptococcic throat, and tonsillitis.

Theominal R.S.

. . . (Theominal with *Rauwolfia serpentina*) is a combination of purified *Rauwolfia serpentina* alkaloids (alseroxylon fraction), theobromine and Luminal (phenobarbital, Winthrop-Stearns, Inc.). Each tablet contains 0.32 Gm. theobromine, 10 mg. Luminal and 1.5 mg. *Rauwolfia serpentina* alkaloids (alseroxylon fraction). Theominal R.S. is a product of Winthrop-Stearns, Inc.

Theominal R.S. is indicated primarily for the treatment of the mild to moderate forms of essential hypertension. It is usually well tolerated in indicated doses. However, the possibility of individual susceptibility or idiosyncrasy, manifested by headache, dizziness, lassitude, drowsiness, nasal congestion, nausea, cutaneous eruptions, diarrhea, etc., should not be overlooked, particularly during prolonged use. Most side effects tend to disappear after temporary interruption or decrease of the medication.

The peripheral vasodilator, sedative and central antihypertensive effects of Theominal R.S. tend to reduce high blood pressure and pulse rate gradually to more nearly normal levels. The tranquilizing action of Theominal R.S. evokes a sense of well being and relaxation, effectively allaying anxiety. This usually precedes the reduction in blood pressure.

The usual dose of Theominal R.S. is one tablet two to three times daily. Due to cumulative action, maximum effect on the blood pressure may not be obtained until after several weeks of therapy. When improvement has been maintained for a time, the dose may be reduced or medication suspended occasionally until its resumption is indicated.

Notes and Suggestions

PRACTICAL FORMULAS FOR USE IN HOSPITALS

CONTACT LENS SOLUTIONS

Three solutions commonly used as artificial tears for contact lens are the Feldman buffer solution, the modified Gifford and Smith buffer solution, and a solution of sodium bicarbonate.

The two buffer solutions mentioned exert an osmotic pressure equivalent to a 1.5 percent sodium chloride solution. The *p*H may be varied according to requirements. The most satisfactory *p*H for each patient may be determined only by trial. The following tables designate the weights of each ingredient required to prepare 120 ml. of the solutions:

FELDMAN BUFFER SOLUTION

*p*H	BORIC ACID	BORAX	NaCL
8.0	.98 Gm.	1.04 Gm.	1.01 Gm.
8.2	.89 Gm.	1.21 Gm.	1.01 Gm.
8.4	.80 Gm.	1.40 Gm.	1.01 Gm.
8.6	.61 Gm.	1.79 Gm.	1.01 Gm.
8.8	.28 Gm.	2.47 Gm.	1.01 Gm.

GIFFORD AND SMITH SOLUTION, MODIFIED

*p*H	BORIC ACID	Na_2CO_3	KCL
8.0	1.640 Gm.	.452 Gm.	1.056 Gm.
8.2	1.497 Gm.	.543 Gm.	1.056 Gm.
8.4	1.332 Gm.	.626 Gm.	1.056 Gm.
8.6	1.175 Gm.	.703 Gm.	1.056 Gm.
8.8	1.029 Gm.	.777 Gm.	1.056 Gm.
9.0	0.874 Gm.	.845 Gm.	1.056 Gm.

A third solution often employed as artificial tears for contact lens is a 1 or 2 percent solution of sodium bicarbonate, which has a *p*H of approximately 8.1. This solution may be used successfully in a high percentage of cases.

For use with contact lens, the lens is first filled with one of the solutions, and then inserted.

SUPPOSITORY MOLD WANTED

A member of the SOCIETY wishes to obtain a 50 or 100 hole suppository mold capable of holding approximately 2 grams per suppository. Anyone having a mold of this size available should contact Mrs. Evlyn Gray Scott, Chief Pharmacist, St. Luke's Hospital, Cleveland 4, Ohio.

INDICATOR FOR CRACKED AMPULS

The use of methyl red as an indicator to detect cracked or broken ampuls containing drugs for spinal anesthesia has been recommended by Dr. Louis W. Lewis in the Correspondence section of *J. Am. Med. Assoc. 153*:50 (Sept. 5) 1953. A saturated solution of methyl red is prepared and a small quantity (about 1 percent) is added to the germicidal solution in which the ampuls are stored. If the germicidal solution is above *p*H 6.2, it will be colored a bright yellow by the indicator. Methyl red is pink at *p*H 4.2 and yellow at *p*H 6.2.

The *p*H of the agents commonly used for spinal anesthesia is lower than 5.4. If the ampul is cracked, and thus contaminated with the germicidal solution, the contents of the ampul will be pink or red in color. Following are the spinal anesthetics that this indicator colors red: procaine hydrochloride 20 percent; procaine 1 percent and ephedrine 5 percent; dibucaine (Nupercaine) hydrochloride 0.25 percent, with dextrose 5 percent; piperocaine (Metycaine) hydrochloride 20 percent; procaine hydrochloride (Novocain) 1 percent; tetracaine (Pontocaine) hydrochloride 1 percent; and dextrose 10 percent. The following vasopressors were also colored red by the sterilizing solution: methoxamine (Vasoxyl) hydrochloride; epinephrine (Adrenalin) chloride 1:1,000; and phenylephrine (Neo-Synephrine) hydrochloride 1 percent. Ephedrine sulfate does not have a low enough *p*H for this indicator and takes the same color as the sterilizing solution.

POPPER ANNOUNCES NEW CATALOG

Popper and Sons, Inc., 300 Fourth Avenue, New York City, announce publication of their new catalog No. 454, covering PerfeKtum Pharmaceutical Equipment. The new catalog includes illustrations and descriptions of ten machines such as vial washers, rotary washers for bottles, laboratory glassware and metal trays, accurate liquid filler and pipettor, all-purpose gravity filler, heavy duty filler, large volume heavy duty duplex filler, and a number of other filling, stoppering, crimping and tablet counting machines.

Copies of the new PerfeKtum Catalog No. 454 may be obtained by writing Popper and Sons, Inc., 300 Fourth Avenue, New York.

VEHICLE FOR OPHTHALMIC OINTMENTS

Petrolatum	80 Gm.
Petrolatum Liquid	20 Gm.

If an emulsion is desired, up to 5 percent of hexadecyl alcohol or 0.5 percent of glyceryl monooleate may be used as an emulsifier. European investigators (*Svenk. Farm. Tidskr.* 57:501, 1953) found that all other emulsifiers caused eye irritation; polyethylene glycols caused a strong irritation.

SOURCE FOR SMALL QUANTITIES OF CHEMICALS

For hospital pharmacists who need small quantities of chemicals normally available in large, bulk containers, the R. F. Revson Company, specializing in "hard-to-find" items, has prepared a partial list of chemicals. This list includes carnauba waxes, Tweens and Spans, menthyl anthranilate, sodium dioctyl sulfosuccinate (Aerosol OT), and many others, in ¼ pound, and up, quantities. Inquiries are welcomed on chemicals not listed, in biological stains, detergents, hydrogen ion indicators, wetting agents, etc. The latest price list, or information on chemicals, may be obtained by writing the R. F. Revson Company, 243 W. 17th Street, New York 11, New York.

STAINLESS COAL TAR OINTMENT

Coal Tar Solution	5.0 cc.
Menthol	0.2 Gm.
Polyethylene Glycol 400 Monostearate	25.0 Gm.
Polyethylene Glycol Ointment, to make	100.0 Gm.

Mix thoroughly the polyethylene glycol 400 monostearate and the polyethylene glycol ointment. Dissolve the menthol in the coal tar solution, add the solution in small portions to the mixture, with mixing after each addition, and mix until uniformly distributed.

If a hot process is used to mix the ingredients to form Stainless Coal Tar Ointment, the final product should be cooled to room temperature with stirring, and then it should be mulled or passed through an ointment mill.

The above formula, described in the July-August, 1953, issue of *Drug Standards,* was submitted to the Committee on National Formulary for its consideration by Dr. Samuel W. Goldstein, Director of the Laboratory of the American Pharmaceutical Association in Washington, D. C.

BORIC ACID AND TALCUM POWDER

Use of talcum powder prepared with 5 percent boric acid powder is not hazardous, according to a finding of the Food and Drug Administration based on clinical research investigation and consultation with leading medical authorities. Borated talcum powder with 5 percent boric acid has been used for many years as dusting powders for babies.

SYRUP OF CHOLINE AND METHIONINE

Choline Chloride	10 Gm.
dl-Methionine	10 Gm.
Diluted Hydrochloric Acid	22 cc.
Distilled Water	18 cc.
Syrup of Cherry, to make	100 cc.

Dissolve the choline chloride and methionine in the water and hydrochloric acid using gentle heat. Add 36 cc. of the syrup of cherry and continue warming to insure that all solids are dissolved. Cool and make up the volume with syrup of cherry. This furnishes a clear and stable preparation. If desired, methionine hydrochloride may be substituted and hydrochloric acid deleted in the above formula.

CHEST RUB

The following formula has been suggested as an all purpose chest rub.

Salicylic Acid	1.0 Gm.
Menthol	0.3 Gm.
Turpentine	1.9 Gm.
Camphor	1.1 Gm.
Camphorated Oil	3.8 Gm.
Oil Peppermint	0.6 Gm.
Eucalyptol	2.1 Gm.
White Petrolatum, to make	100.0 Gm.

Form a eutectic mixture of the first seven ingredients, then mix this thoroughly with the petrolatum.

ENTERIC COATING

Capsules may be enteric coated quite easily with a new enteric coating preparation according to R. E. Abrams writing in the *Southern Pharmaceutical Journal* for November 1954. The mixture is warmed and by using tweezers the capsules are dipped half at a time. Drying takes place immediately and tight seals are obtained.

N-Butyl Stearate	45 parts
Carnauba Wax	30 parts
Stearic Acid	25 parts

Melt the carnauba wax then add the required amount of stearic acid over heat stirring to insure a uniform liquid mixture. Then add the butyl stearate and mix thoroughly. Allow mixture to congeal making certain separation is avoided. (Modern Pharm. Techniques—R. E. Abrams)

CURRENT LITERATURE

edited by SISTER MARY ETHELDREDA, *St. Mary's Hospital, Brooklyn, N.Y.*

American Professional Pharmacist

SEPTEMBER, 1954—"A New Aseptic-Dispensing Suite, St. Bartholomew's Hospital, London," by J. R. Eliot. A detailed description of a newly built, well-planned unit containing all the essentials for this hospital pharmacy activity. *page 858*

OCTOBER, 1954—"Summarized Content of a Hospital Pharmacy Graduate Program," by Herbert Flack. Presenting the outline of the program at the Jefferson Medical College Hospital and the Philadelphia College of Pharmacy and Science. *page 962*

"Reducing Repackaging Costs," by Robert C. Bogash. Describes a new device which will save time and labor in repackaging materials from bulk quantities. *page 964*

Hospital Management

SEPTEMBER, 1954—"What to Include in a Pharmacy Internship Record," by Herbert L. Flack. Describes records compiled during the pharmacist's internship. These can be of tremendous value in reviewing and evaluating the intern's training and experience, especially by prospective employers. *page 86*

OCTOBER, 1954—"How to Prepare a Training Manual," by William Whitcomb. Describes the need for a pharmacy procedure and administrative policy manual and a practical method of compiling it, including the basic topics, subjects and classifications which should be considered. *page 86*

The Hospital Pharmacist (Canada)

SEPTEMBER-OCTOBER, 1954 — "Setting Up a Course in Pharmacology for Student Nurses," by John L. Malette. Emphasizes the role of the pharmacist as a teacher of pharmacology. Includes information on course outlines, suggested references and teaching. *page 259*

"A Simple Apparatus for Preparing Dilutions for Injection," by Sister M. Rebecca. Diagrammatic drawing shown along with details of materials needed and construction. *page 268*

Hospital Progress

SEPTEMBER, 1954—"Evaluation of Management Guides," by Don E. Francke. A thorough description of the three categories of policies, namely, administrative, general and departmental; and the procedures by which these policies are implemented which formulates the management guide or manual. Includes comment on the values derived from having a pharmacy operating manual. *page 88*

Hospitals

OCTOBER, 1954—"Purchasing with a Plan," by Waldo W. Buss. Describes standardization of hospital purchases through committee participation. *page 122*

NOVEMBER, 1954—"Central Purchasing for the Pharmacy," by David Burack. Presents the advantages of centralized planned buying under the direction of the purchasing agent. *page 132*

J. Am. Pharm. Assoc., Pract. Pharm. Ed.

OCTOBER, 1954—"The Pharmacist and Civil Defense," by Earl A. Grove, Health Supplies Consultant, Federal Civil Defense Administration. Covers recent developments in the civil defense program with particular reference to the role of the pharmacist. *page 623*

Modern Hospital

OCTOBER, 1954—"The Pharmacist Has Many Uses," by George C. Shicks. A description of 10 points which will help the administrator understand where the pharmacist by his education and experience may be an important member of the hospital team. *page 92*

"Anti-Emetic Effects of Chlorpromazine (Thorazine)," by Robert J. Peterson. A complete description of the pharmacology of emetic agents in general and that of chlorpromazine in particular detail. *page 100*

NOVEMBER, 1954—"Parenteral Fluid Therapy; Basic Principles," by S. E. Jordan, Ph. D., and C. C. Pfeiffer, M.D. Describes the physiologic homeostatic mechanism concerned with body electrolyte and water balance and the rational use of parenteral fluids to correct disturbances. *page 102*

Texas Hospitals

SEPTEMBER, 1954—"Bulk Compounding in the Hospital Pharmacy," by Grover C. Bowles. A practical approach to bulk compounding as presented at the 1954 Texas Seminar. *page 6*

ASHP affiliates

North Carolina Society

Members of the North Carolina Society of Hospital Pharmacists held a short meeting in conjunction with the Semi-Annual Meeting of the Southeastern Society which was held in Durham, N. C., October 23 and 24. With I. T. Reamer, Chief Pharmacist at Duke Hospital, Durham, serving as chairman of the Committee responsible for arrangements for the Southeastern Meeting, the following others from the North Carolina Society assisted: Dorothy Brecht, Watts Hospital, Durham; Ed Superstine, Duke Hospital, Durham; J. H. Pittman, VA Hospital, Durham; H. F. Padgett, McPherson Hospital, Durham; W. T. Collier, University of North Carolina Graduate School of Pharmacy, Chapel Hill; and W. W. Taylor, North Carolina Memorial Hospital, Chapel Hill.

Greater New York Chapter

The first meeting of the season of the Greater New York Chapter of the ASHP was held on the afternoon of October 20 at the Nurses' Library at St. Catherines Hospital, Brooklyn. Two medical missionary Sisters, both interns in pharmacy at St. Clare's Hospital, were welcomed as guests of the Chapter.

Sister Etheldreda reported on the Institute which was held at the University of Connecticut in June. Other discussions during the meeting covered the advisability of permitting pharmaceutical companies to exhibit in hospitals, and information regarding new drugs such as chlorpromazine and Blutene hydrochloride.

Toledo Society

The Toledo Society of Hospital Pharmacists held a dinner meeting at the Fremont Memorial Hospital in Fremont, Ohio on October 21. The principal speaker, Dr. James C. Bates, Radiologist at Fremont Memorial Hospital, spoke on x-ray contrast media. The host for the meeting was Mr. Eric Thellar, Chief Pharmacist.

Southern California Society

Thirty-five members were present for the September 8 meeting of the Southern California Society held at the Glendale Sanitarium in Glendale, California. Mr. Brax and Mr. Brad Evans, Pharmacists at the hospital, acted as hosts and the group was welcomed by Mr. Russ Schawver, Assistant Administrator.

During the business session, Miss Alice Calnon, Membership Chairman, introduced new members and reported a total of 102 members in the Southern California Society with representation of 42 different hospitals.

Plans were made to rent space for files and have a telephone answering service at the headquarters of the Southern California Pharmaceutical Association in Los Angeles. Mr. Joe Ball reported on the proposed state pharmacy law drafted by the Legislative Committee of the California Pharmaceutical Association.

Philadelphia Association

The entire program for the October 19 meeting of the Philadelphia Hospital Pharmacists' Association was devoted to the Therapeutics Committee and the Hospital Formulary. The subjects covered and participants were as follows:

The Practical Viewpoint of A Therapeutics Committee and Formulary in a Teaching Hospital—Presented by John N. Lindquist, M.D., Associate in Medicine, Jefferson Medical College; Acting Chief Clinical Assistant, Medical Outpatient Service and Chief Clinical Assistant, Geriatrics Outpatient Service, Jefferson Medical College Hospital; Practicing Physician.

The Role of the Pharmacist with the Therapeutics Committee and Formulary in the Non-Teaching Hospital—Presented by Angelo P. Angelides, M.D., Medical Administrative Liaison Officer, Lankenau Hospital; Instructor in Medicine, Jefferson Medical College; Attending Physician, Lankenau Hospital and Methodist Hospital; Practicing Physician.

Formation and Operation of a Pharmacy and Therapeutics Committee—Presented by George Archambault, Pharmacist Director, Chief of the Pharmacy Branch, Hospital Division, U.S.P.H.S., Washington, D.C.

Maryland Association

President George Archambault was a guest at the October 21 meeting of the Maryland Association of Hospital Pharmacists held at the Park Plaza Hotel in Baltimore. The business session was held following a dinner.

Results of the election of officers for the new year were as follows: *President,* Robert L. Capehart, Public Health Service Medical Supply Depot, Perry Point, Md.; *Vice-President,* Eugene George Czapiewski, Union Memorial Hospital, Baltimore; *Secretary - Treasurer,* Mary Ann Coleman, 1401 Eutaw Pl., Baltimore; and *Corresponding Secretary,* Dudley A. Demarest, 808 Lynhurst St., Baltimore.

Illinois Chapter

Approximately forty-five hospital pharmacists and fifteen company representatives attended the October 12 meeting of the Illinois Chapter of the ASHP. The meeting was held at the St. Clair Hotel. Included on the program was a talk on "Hospital Pharmacy and the Law," by Mr. Samuel Shkolnik.

Akron Area Society

Mr. Eugene Hovis and Mr. William Slabodnick, members of the Akron Area Society participated in National Pharmacy Week with a fifteen minute program on a Massillon radio station and a display in the lobby of the Massillon City Hospital.

Other activities of the Akron Area Society were discussed at the October 12 meeting at Union Hospital in Dover. These included plans for the Student Project Committee and announcement of the program for the Institute for Hospital Pharmacists and Administrators scheduled in Columbus in November.

"Human Relations and The Pharmacy" was the subject of a panel discussion which was moderated by Mr. William Derek. Subjects covered included procedures for special duty nurses in the hospital, employee charges, retail druggist relationship, pricing, and charging systems.

Association of the Midwest

The Fall Seminar of the Association of Hospital Pharmacists of the Midwest was held at the College of Pharmacy, University of Nebraska, in Lincoln on November 6. The all-day program was designed after the annual Institutes according to the following schedule:

Presiding, Robert A. Hallock
Welcome, Dr. Joseph B. Burt, Dean, College of Pharmacy, University of Nebraska.
Introduction to Motion Study, Professor Niles H. Barnard, Chairman, Dept. of Mechanical Engineering, University of Nebraska.
Pharmacy of Rauwolfia serpentina, Dr. Varro E. Tyler, Jr., Assoc. Professor of Pharmacognosy, University of Nebraska.
Some Aspects of Pharmacy in Great Britain, Dr. Witold Saska, Associate Professor of Pharmacy, University of Nebraska.
Newer Drugs in Anesthesia, Dr. Frank Cole, Anesthesiologist, Lincoln General Hospital.
Dinner, Zephyr Room Capitol Hotel, Lincoln.
Tablet Manufacturing in Hospital Pharmacy, Dr. Frank P. Cosgrove, Associate Professor of Pharmacy, University of Nebraska.
Systems of Pricing—Panel Discussion.
Daniel F. Moravec, *Moderator,* Lincoln General Hospital, Lincoln; Leona Crowley, Good Samaritan Hospital, Kearney; Sister M. Carlene, St. Elizabeth Hospital, Lincoln; Al Lund, Veterans Hospital, Omaha; and Leona Humlicek, Creighton University, Omaha.

Following the program, a business session was held with Daniel F. Moravec, President of the Association of the Midwest, presiding.

Oklahoma City

The first meeting of the new fiscal year of the Oklahoma Society of Hospital Pharmacists was held on Wednesday evening, October 20 at St. Anthony Hospital, Oklahoma City. The guest speaker was Miss Marguerite Jones, Chief Pharmacist at Hillcrest Memorial Hospital, Tulsa.

The following officers for the 1954-1955 year were installed: Marguerite Jones, *President;* Stokes Baggett, *Vice-President;* and Sister M. Teresa, *Secretary-Treasurer.*

Alabama Society

The Society of Alabama Hospital Pharmacists met for the quarterly meeting at the Veterans Administration Hospital in Birmingham on September 11 and 12. The first session opened with a tour of the hospital conducted by Chief Pharmacist Terry Nichols. Following, Dr. L. B. Andrew, Manager of the Hospital, welcomed the group.

Howard Clem, Chief Pharmacist at Lanier Memorial Hospital in Langdale, and President of the Society, presided. Terry Nichols, Program Chairman, presented the speakers including John Howell, Administrator of Caraway Methodist Hospital, who gave the "Administrator's Viewpoint of the Pharmacy." "Pharmacological Actions of Some Investigational Drugs" was the topic of Dr. E. E. Eddleman, Jr., Chief of Cardio-Vascular Service at the VA Hospital; and Dr. W. R. Byrum, Director of Pharmacy at Howard College, discussed "Graduate Programs in Hospital Pharmacy." Other papers presented included "Pharmacy Service-Nursing Service Relationship" by Miss Catherine Cox, Chief of Nursing Service, VA Hospital; "Principles of the Dry Freeze Method Used in Vein Replacement Surgery" by Dr. James Pate, Birmingham; and "Formulas and Equipment for Profitable Volume Compounding in a Small Hospital" by Terry Nichols.

Following a fellowship hour and dinner at Mrs. Todd's Restaurant in Town House, Dr. William Hawley spoke on "Radioactive Isotopes —New Pharmaceuticals."

Sunday was devoted to a report on the Institute at Storrs, Connecticut by Mr. Perry Cox, and a workshop with Millard Johnson as leader.

A business session concluded the meeting with election of new officers.

Mississippi Society

The October meeting of the Mississippi Society of Hospital Pharmacists was held October 13 at 2:00 P.M. in conjunction with the Mississippi Hospital Association Convention at the Hotel Heidelberg in Jackson. The guest speaker was Dr. John F. Busey who discussed hypertension, causes, methods of treatment, and drugs used. Included also on the program were two movies—one entitled "A Tour of Lederle Laboratories," and the other, "Therapy with Cortone."

During the business session new officers were elected as follows: *President,* James T. Brookshire, VA Hospital, Jackson; *Vice-President,* William W. Woods, Rush Memorial Hospital, Meridian; *Secretary,* Doris W. Cassidy, 1425 South St. Vicksburg; and *Treasurer,* Joseph Campbell, Anderson Infirmary, Meridian.

Southeastern Florida Society

A joint meeting of the Miami Branch of the American Pharmaceutical Association and the Southeastern Florida Society of Hospital Pharmacists was held at Mount Sinai Hospital on October 22, 1954. Following the dinner, the meeting was devoted to discussing the role of the pharmacist in Civil Defense with a talk by Major S. K. Bronstein. Also present was the director of nurses at Mount Sinai Hospital who spoke on some of the problems within the nursing profession.

The recorded messages from Dr. Robert P. Fischelis and Dr. George Archambault were presented and announcements were made regarding the 1955 A.Ph.A. Convention which is to be held in Miami Beach. Mrs. Anna D. Thiel and Mr. Lee Neidlinger also gave reports on the 1954 meetings held in Boston in August.

New officers of the Southeastern Society were elected including Mary Wernersbach, *President*; Carl Dell, *Vice-President;* and Ralph T. De Young, *Secretary.*

ASHP President Attends Southeastern Meeting. Shown in photo left to right are I. Thomas Reamer, George F. Archambault, Dorothy Brecht, Meyer Walitzky, and William Taylor.

Southeastern Society

The semi-annual meeting of the Southeastern Society of Hospital Pharmacists was held in Durham, N. C. on October 23 and 24. Mr. I. Thomas Reamer, Chief Pharmacist at Duke Hospital in Durham and a past president of the ASHP, served as General Chairman of the Convention Committee. Miss Johnnie Crotwell, Chief Pharmacist at Georgia Baptist Hospital in Atlanta, presided in the absence of the president.

Among the speakers at the meeting were Dr. George F. Archambault, President of the ASHP, and Mr. Meyer Walitzky, Inspector of Drugs and Chemicals, Office of Comptroller, City of New York. Also on the program was a discussion on the current status of cortisone therapy by Dr. Harry T. McPherson, Research Fellow in the Department of Medicine, Duke University; Dr. Isaac M. Taylor of North Carolina Memorial Hospital in Chapel Hill spoke on "Electrolytes;" and Mr. Edward Superstine, Assistant Director of the Duke Hospital Pharmacy, presented a paper entitled "Detailing a Simplified Method for Efficient Pharmacy Service."

On Sunday the group met at the Pharmacy Institute in Chapel Hill where they were welcomed by Mr. W. J. Smith, Secretary of the North Carolina Pharmaceutical Association. Dean Edward A. Brecht of the School of Pharmacy at the University of North Carolina spoke on "Pharmacy Briefs," covering new developments, mechanical aids, and equipment of practical interest to the hospital pharmacist.

An open-forum covering "Professional Responsibilities of the Hospital Pharmacist," and "Administrator Relationships," was moderated by Dr. George Archambault. The handling of this portion of the session was of particular interest. A brief period was allotted to each subject and pertinent remarks were solicited from individuals representing the different categories—chief pharmacist, junior pharmacist or intern, pharmaceutical house representative and administrator.

During the business session, announcements were made regarding forthcoming meetings and institutes scheduled for 1955.

Wisconsin Society

Members of the Wisconsin Society of Hospital Pharmacists met at the Milwaukee Children's Hospital on September 17. Three new members were introduced—Miss Gertrude Friedman, Milwaukee Hospital; Miss Thora Vervoren, Columbia Hospital; and Mr. Leroy Zimmermann, Milwaukee County Hospital.

During the business session, President Dell Olszewski appointed the following members to work with Dr. Louis Busse in planning the hospital section at the 1955 Convention of the Wisconsin Pharmaceutical Association: Mr. William Benka, Mr. Edward Froncek, Mr. Richard Henry, Mr. H. Kumakura, Sister M. Blanche, Sister Gladys Robinson, and Miss Ursula Heyer, in addition to the president.

Announcement was also made of the editorial entitled "Hospital Dispensing," which appeared in the June issue of the WISCONSIN DRUGGIST. A copy of the reply from the President of the Wisconsin Society of Hospital Pharmacists was included along with the minutes of the meeting which are made available to all members.

Northeastern New York Society

The Northeastern New York Society of Hospital Pharmacists met in a joint meeting with the Medical Representative Society of the Capitol District (Albany, Schenectady, Troy), at the Veterans Administration Hospital in Albany on October 21 at 8 P.M. Mr. Benjamin Teplitsky, Chief, Pharmacy Service, VA Hospital, Albany, and President of the Northeastern Society, was the principal speaker. He discussed "Medical Service Representatives as Viewed by Hospital Pharmacists," presenting the results of a survey of pharmacists' attitudes in 262 hospitals. It was reported that four hundred questionnaires were sent out to chief pharmacists of hospitals throughout the country, as well as such territories as Alaska, Canal Zone, Guam, Hawaii, Phillipine Island, Puerto Rico, and the Virgin Islands. The replies received from 262 hospitals represented 220,885 hospital beds. The number of pharmacists employed by these pharmacies was 758; the number of non-pharmacy help was 493—a total of over 1200 men employed in hospital pharmacies.

The replies received from hospital pharmacies were grouped into eight categories as follows:

	Hospitals
1. Veterans Administration	47
2. General Medical & Surgical	39
3. Mental	29
4. Armed Forces	66
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The last category consists of replies from 27 hospitals having a staff of 122 pharmacists and represents past officers of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS.

Arizona Chapter

The September 19 meeting of the Arizona Society was held at St. Joseph Hospital in Phoenix. Included on the program was a report on the A.Ph.A. Convention and the ASHP Annual Meeting by Miss Delores Strittmeatter. She attended the meetings in the absence of the official delegate from the Arizona Society, Mrs. Mydras Brewer.

During the business session, appointments to national committees were announced and plans for future meetings were outlined.

as the president sees it

GEORGE F. ARCHAMBAULT
U. S. Public Health Service, Washington, D. C.

Tempus Fugit—Mid-November finds your officers and committees enthusiastically planning programs for the Institutes and the Miami meeting.

Thanks—My many thanks to those of you who have taken time out of busy schedules to write me your ideas of hospital pharmacy and the SOCIETY. Your comments are most appreciated and helpful. I hope that I shall hear from many more of you in the next few months.

The ASHP Recording—Did you hear the recorded message sent to the 38 local chapters? The Secretaries of local chapters received the "platters" and have or will have them played to you at one of the fall meetings. Let's have your reaction to the message and to this general idea. Should your Society use this medium to bring an annual personal message from each new President and Secretary to the 38 local chapters? Incidentally, you will be pleased to know that the A.Ph.A. sponsored this project through the Division of Hospital Pharmacy.

Institutes—Definitely, two this year, Chicago in June and Atlanta in August. Better start making you plans to attend now. Write your real good ideas for topics or speakers to Paul Parker, Chairman of the Program Committee. Paul is at the University of Chicago Clinics at Chicago.

Activities of your President—During these past few months I have really enjoyed the privileges and pleasures of an ASHP President. It has been simply grand to meet so many of you and "talk hospital pharmacy." I have met with the Philadelphia Hospital Pharmacists' Association in Philadelphia where we had a splendid meeting with physicians and hospital administrators in historical Jefferson Medical College. I enjoyed participating in a panel discussion with Dr. Lindquist and Dr. Angelides. Our subject was "Pharmacy Committees in Hospitals—Their duties and Functions." In October, it was my pleasure to meet with the Maryland Association of Hospital Pharmacists at one of their dinner meetings in Baltimore. A grand meeting and a grand group headed by President Ruth and Secretary Mary Coleman. Just recently I attended the Southeastern Society of Hospital Pharmacists' semi-annual meeting in Durham, North Carolina. This was one of the most inspirational groups that I have ever worked with. Hospital pharmacy is in good hands in the South. Tommy Reamer is to be congratulated on the program and Johnnie Crotwell, as usual, did a noble job chairing the sessions.

Just recently I had the opportunity of discussing hospital pharmacy as a career with the students at the Brooklyn College of Pharmacy, Long Island University. This past week I spoke at the Delaware-District of Columbia-Maryland Hospital meeting (Pharmacy Section) on "What's New in Hospital Pharmacy?" All in all these are busy weeks. I'd like to mention by name all the fine folks I have met in hospital pharmacy these past few weeks — but space restricts me to these few lines.

Committee to Study the Role of Pharmacists in Small Hospitals—Tom Foster and his committee are actively pushing forward on this project. Last month, Mr. Foster, Dr. Fischelis, Dr. Francke, Miss Niemeyer and your President met with Dr. J. McGibony of the Pittsburgh School of Public Health and reviewed a proposal for a national hospital pharmacy survey, one designed to learn the facts about the practice of hospital pharmacy in all hospitals—not just in the small ones. This project promises to be of great value to hospital pharmacy and the SOCIETY—of this, more later.

Self-Evaluation—My closing thought for this message—Let's each check our pharmaceutical service today against Walter Frazier's proposed check list for pharmacy service. (See page 351 of the September-October 1954 issue of THE BULLETIN). Any New Year's resolutions—or, are you satisfied with your score?

A Merry Christmas—My very best wishes for a Happy Christmas to all of you.

George F. Archambault

NEWS

Geiger Accepts Position with Pfizer

E. Burns Geiger, formerly Chief of the Pharmacy Division of the Veterans Administration's Department of Medicine and Surgery, has been appointed Director of Trade Relations with the Chas. Pfizer Company. He has recently been associated with the J. B. Roerig and Company, Chicago, Ill.

Mr. Geiger is well known to hospital pharmacists and is a member of the SOCIETY as well as the A.Ph.A. He is a graduate of the George Washington University School of Pharmacy, Washington, D. C.

Canadian Institute Planned

The Canadian Society of Hospital Pharmacists has announced plans for a two-day Institute on Hospital Pharmacy. Sessions are scheduled for August 13 and 14, 1955 in Vancouver, B.C. This is just prior to the Annual Convention of the Canadian Pharmaceutical Association which opens in Vancouver on August 15.

The Coordinating and Publicity Chairman for the Institute is Miss Grace Macdonald, Mountain Sanatorium, Hamilton, Ontario.

Texas Seminar

The Seventh Annual Hospital Pharmacy Seminar will be held Saturday and Sunday, February 19 and 20, at the University of Texas College of Pharmacy, Austin, Texas. This Seminar is conducted jointly by the College of Pharmacy and the Division of Extension of the University. It is sponsored by the Texas Society of Hospital Pharmacists.

Guest speakers will include: Clarence J. Vance, Administrator of South Highlands Infirmary, Birmingham, Ala. and Professor of Hospital Pharmacy at Howard College; Sister Teresa, Chief Pharmacist, St. Anthony's Hospital, Oklahoma City, Okla.; and Dr. David T. McMahon, an internist of San Antonio, Texas.

Future A.Ph.A. Conventions

The American Pharmaceutical Association has definitely decided to move its conventions from the customary summer period to the spring. This was decided by mail vote of the members of the Association. Accordingly, the next convention, which is scheduled to be held in Miami Beach, Florida, will be held the week of May 1 to 7, 1955.

As an affiliate of the A.Ph.A., the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS will continue to hold its Annual Meetings in conjunction with the A.Ph.A. Conventions. The 1955 meetings are also scheduled during the week of May 1 and it is probable that the hospital pharmacists will meet on May 2 and 3 with the House of Delegates' Session on May 1.

While it is not possible to specify dates of future meetings very far in advance, the Council of the American Pharmaceutical Association has voted to hold these meetings after Easter each year and the most desirable period will be the first full week following Easter. The House of Delegates of the A.Ph.A. at the August 1954 Convention in Boston decided tentatively to consider New Orleans or Detroit for the 1956 Convention, New York for 1957, and Atlantic City for 1960.

Mrs. Scott Participates in Canadian Meeting

Mrs. Evlyn Gray Scott, Chief Pharmacist at St. Luke's Hospital in Cleveland, Ohio, was one of the principal speakers at the Pharmacists' Section of the Annual Convention of the Canadian Hospital Association. Meetings of the Association were held on October 25, 26 and 27 at the Royal York Hotel in Toronto with the Canadian Society of Hospital Pharmacists meeting at St. Michaels' Hospital on Sunday, October 24.

"Upgrading Hospital Pharmacies for Internship Training" was the subject of the talk presented by Mrs. Scott. Also included on the program was a panel on "Suggested Outline in the Teaching of Pharmacology and Therapeutics in Schools of Nursing."

Vance Heads Alabama Hospital Association

Mr. C. J. Vance, Administrator of South Highlands Infirmary and formerly Chief Pharmacist at the same institution, is president of the Alabama Hospital Association. Mr. Vance has been active in hospital pharmacy organizations and is a past president of the Southeastern Society of Hospital Pharmacists. He is a graduate of Howard College of Pharmacy in Birmingham and also holds an A.B. degree from Birmingham-Southern College. He is a member of the American College of Hospital Administrators.

Jean Whitmore Accepts New Position

Miss Jean Whitmore has accepted the position of Chief Pharmacist at St. Vincents Hospital in Jacksonville, Fla. Miss Whitmore was formerly on the pharmacy staff at Jackson Memorial Hospital in Miami, and at the Jefferson Medical College Hospital in Philadelphia.

Southern College Offers New Course

Southern College of Pharmacy in Atlanta is offering an elective course in "Isotope Pharmacy" which is of particular interest to hospital pharmacists. It is a two-quarter course carrying six credit hours and deals with the radioactive preparations which have recently been introduced into medicine. The course is designed to provide the future hospital pharmacist with the theory, calculations and techniques for the intelligent handling of radioactive materials.

Dr. Wei-Chin Liu, who is teaching the course, received his B.S. in Pharmacy at the National Tsing Hua University in China and his Ph.D. in pharmaceutical chemistry from the University of Maryland.

Hospital Pharmacists Attend Brazil Congress

Among the hospital pharmacists who attended the Third Pan-American Congress of Pharmacy and Biochemistry held in Sao Paulo, Brazil, December 1-8, were Don E. Francke, Chief Pharmacist, University Hospital, Ann Arbor, Mich., and Mrs. Anna C. Richards, Chief Pharmacist, The Mountainside Hospital, Montclair, N. J. Col. H. D. Roth of the Bureau of Medicine and Surgery, Department of the Army, was also among the delegates. The American delegation was headed by Mr. Jack B. Heinz, Vice President of the A.Ph.A.

President of the ASHP, Dr. George Archambault, sent greetings on behalf of the SOCIETY and papers on minimum standards and a proposed formulary service were presented by Dr. Francke at the Hospital Pharmacy Section.

Course in Hospital Organization and Management

The Canadian Hospital Association in cooperation with the Department of Hospital Administration, School of Hygiene, University of Toronto, is offering an extension course in hospital organization and management. The course is intended to provide organized training in basic hospital organization and management for those engaged in hospital work who are unable to enroll in university programs in hospital administration.

The course extends over two years, consisting of two thirty-week winter sessions on an extramural basis and two four-week summer sessions at a specified Canadian university. Each summer session is held at two places, one in western Canada, the other in eastern Canada. Each winter session is composed of fourteen lessons with assignments. A minimum of six hours of work per week is necessary for these lessons. Summer sessions add another 150 hours and are related through seminar discussions to the work of the preceding winter. Subjects covered in the course include management, organization, hospital organization, departmental management, medical staff, health economics, and business management.

This project has been made possible through the W. K. Kellog Foundation. Inquiries regarding the course may be addressed to: The Secretary, Committee on Education, Canadian Hospital Association, 280 Bloor Street West, Toronto 5, Ontario.

Calendar Of Meetings

1955

New England Hospital Assembly (including Pharmacy Section)—March 28-30, 1955, Boston, Massachusetts.

Southeastern Hospital Conference (including Southeastern Society of Hospital Pharmacists)—April 20-22, 1955, Atlanta, Georgia. (Hotel Biltmore)

Association of Western Hospitals (including Pharmacy Section)—April 25-28, 1955, San Francisco, California.

American Pharmaceutical Association—May 1-6, 1955, Miami Beach, Florida.

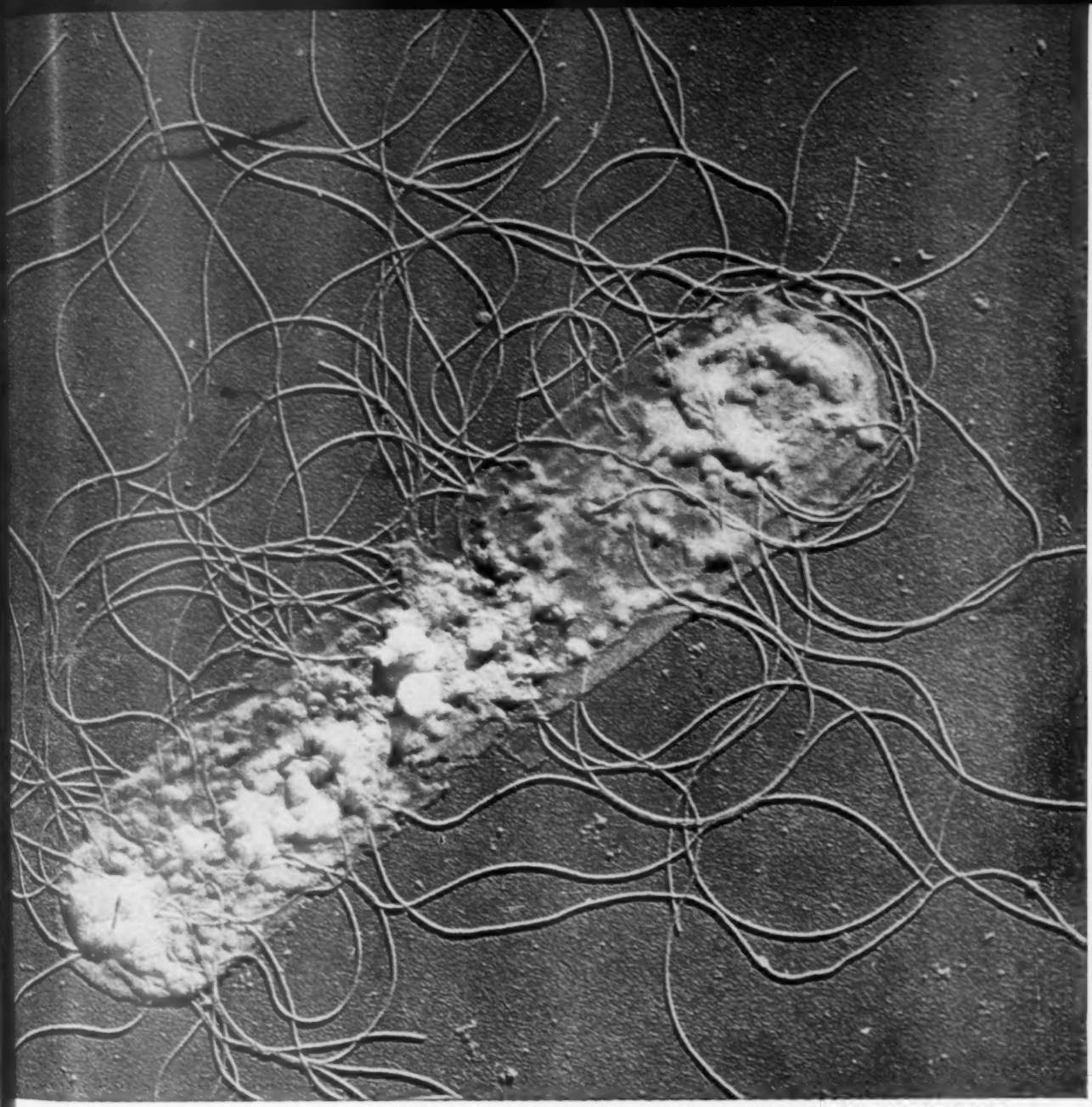
American Society of Hospital Pharmacists,—May 1-3, 1955, Miami Beach, Florida.

Tri-State Hospital Assembly (including Pharmacy Section)—May 2-5, Chicago, Illinois, (Palmer House)

Catholic Hospital Association—May 16-19, 1955, St. Louis, Missouri.

Institute on Hospital Pharmacy—June 13-17, 1955, University of Chicago, Chicago, Ill.

Institute on Hospital Pharmacy—August 22-26, 1955, Emory University, Atlanta, Georgia. (Tentative)



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Tri-State Hospital Assembly

The Pharmacy Section of the Tri-State Hospital Assembly will meet at the Palmer House in Chicago, May 2-5, 1955. Mrs. Jane Rogan, Chief Pharmacist at Evangelical Deaconess Hospital in Detroit will serve as Chairman of the Pharmacy Section and Mr. Leo Godley, Chief Pharmacist at Bronson Methodist Hospital in Kalamazoo, Michigan, is serving as Secretary.

Pharmacist Participates in Institute

Miss Johnnie Crotwell, Chief Pharmacist at Georgia Baptist Hospital in Atlanta, Ga., participated in the recent Nursing Service Administration Institute held in Atlanta, October 18-24. Her paper entitled "Correlation of Pharmacy and Nursing Service for Patient Care," pointed out specific ways in which the Pharmacy Department can make a contribution to better patient care.

Hospital Pharmacists Elected Officers of A.Ph.A. Branch

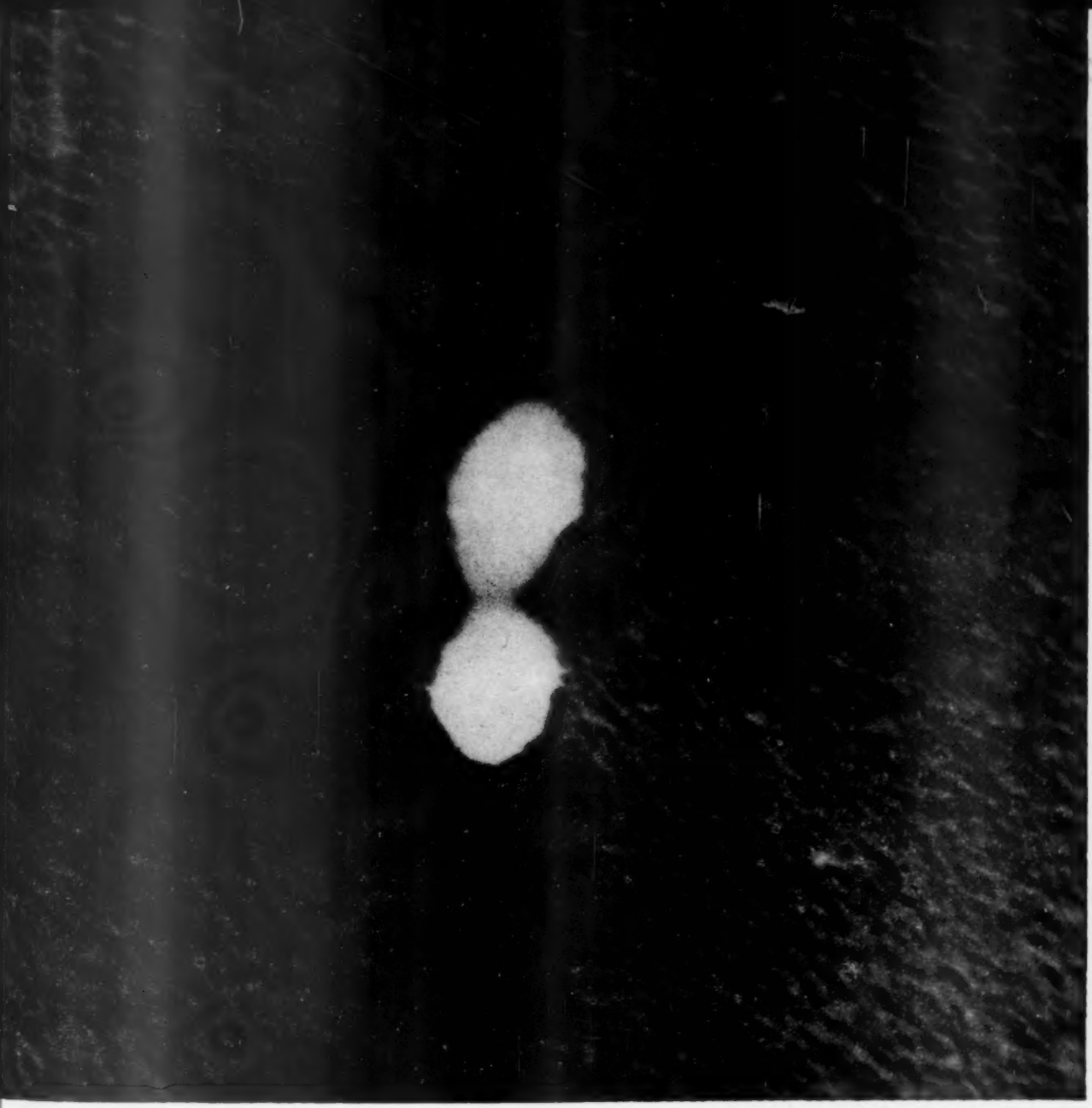
Hospital pharmacists recently elected officers of the Puget Sound Branch of the American Pharmaceutical Association include the Recording Secretary, Theodore Taniguchi, Chief Pharmacist at Harborview Hospital; the Corresponding Secretary, Mrs. Mary Hall Trubshaw, Chief Pharmacist at Firland Sanitorium; the Treasurer, Robarts L. Proper, Chief Pharmacist at the U.S. Public Health Service Hospital; and the Vice-President, Joseph E. Birmingham, Chief Pharmacist at the Veterans Administration Hospital. All are located in Seattle, Washington. The new president is Mr. George Hendrickson, a retail pharmacist.

Howard University Plans New Pharmacy Building

The corner stone laying for the new pharmacy building at Howard University, Washington, D.C. took place on October 22. Dean Linwood F. Tice of the Philadelphia College of Pharmacy and Science was the principal speaker.

Hospital Pharmacists Participate

Hospital pharmacists in Vermont participated in the October Convention of the Vermont Hospital Association. This meeting was in charge of Mr. Edward F. Croumy, Chief Pharmacist at The Mary Fletcher Hospital in Burlington, Vermont. Included on the program was a talk by John Webb, Chief Pharmacist at Hartford Hospital in Hartford, Conn. He spoke on the use of plastics for packaging pharmaceuticals.



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NEW MEMBERS

NOVEMBER 1, 1954

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Holland, Molly G., 529 S. 80th St., Birmingham

CALIFORNIA
Bear, Ben L., 1642 San Gabriel Ave., Glendale (A)

CONNECTICUT
Sister Mary Lorraine (Ayotte), St. Mary's Hospital, Waterbury (A)

DISTRICT OF COLUMBIA
McLaughlin, Betty L., 1334 Ft. Stevens Dr., N.W., Apt. 205, Washington (A)

ILLINOIS
Ose, Harry T., 12248 S. LaSalle St., Chicago,(A)
Rice, Harry L., 4332½ N. Hermitage St., Chicago

INDIANA
Kaminski, Edward F., 2010 Michigan Ave., La Porte (A)
Phillips, Vance C., 112 N. Main, Goshen (A)

KANSAS
Dickerson, Warren W., 21 Halsey Dr., Hutchinson

MARYLAND
Nemerow, Martin W., 601 N. Broadway, Baltimore (A)

MICHIGAN
Hughes, Mary Lou, 710 W. Roe St., Buchanan
Nitishin, Arnold, 4228 Dexter Rd., Ann Arbor (A)

MINNESOTA
Perreault, Marie Lea, 4939—36th Ave. S., Minneapolis
Strom, Russell E. Y., 802—4th St. S.E., Minneapolis

MISSOURI
Easter, Joseph H., 4354 Enright Ave., St. Louis
Gilbert, S. Edward, 4336 Delmar Blvd., St. Louis
Mueller, John P., 1104 Gorgas, Apt. A, Lemay
Sister Jean Frances Haug, 525 Couch Ave., Kirkwood

NEBRASKA
Franco, Frank J., 2577 Pratt St., Omaha

NEW JERSEY
Ross, Merritt K., 77 Magnolia Dr., New Providence (A)

OHIO
Weaver, Ruth M., 115 Batavia, Toledo (A)

PENNSYLVANIA
Oddis, Joseph A., 1047 Kirsopp Ave., Pittsburgh
Rotondo, Evelyn, 428 Washington St., Bristol
Sister M. Constantia Catney, 2117 Carson St., Pittsburgh

TEXAS
Bonar, Lee E., Foundation Apts. C-2, Galveston

UTAH
Tueller, Reed O., 2465 S. 15th E., Salt Lake City (A)

VIRGINIA
Fiske, Russell H., 1200 E. Broad St., Richmond

Index photographed at the beginning for the convenience of the microfilm user.